PACIFIC AIRMOTIVE CORPORATION, INC.

April 13, 1985

Mr. John Lewis
California Regional Water Quality
Control Board
Los Angeles Region
107 South Broadway, Room 4027
Los Angeles, California 90012-4506

Subject: Pacific Airmotive - Suspected Subsurface Discharge
Aviation Jet Fuel

Dear Mr. Lewis,

As you are aware, Pacific Airmotive Corporation has been pursuing emergency clean up of the above discharge of aviation jet fuel. We have completed site investigation with Kennedy/Jenks Engineers and your representative, Mr. D. Bacharowski. Kenedy/Jenks have prepared a site assignment and spill clean up Specification which we have forwarded to various contractors requesting return by April 19, 1985.

On receipt of the completed bids, it is our intention to move immediately into the site clean up phase.

We have attached both the site assessment report and Specification for spill clean for your persual.

Any additional information you may require is available by contacting myself via Bruce Wettstein, General Manager, Pacific Airmotive Corporation, Burbank, or Tom Kalanowski at Kennedy/Jenks Engineers, San Francisco, (415) 352-6065.

Sincerely tours,
PACIFIC AIRMOTIVE CORPORATION

Christopher M Andrews
V.P. Engineering, Quality Control & Facilities

eg
cc: B. Wettstein - P.A.C.
T. Kalanowski - Kennedy/Jenks Engineers
file

Attachment

DAVID A. BACHAROWSKI

APR 17 1985

Noel Lewis
(415) 362-6065

1050

SPECIFICATIONS

SPILL CLEANUP PLAN

PACIFIC AIRMOTIVE CORPORATION

BURBANK, CALIFORNIA

KENNEDY/JENKS ENGINEERS

10 APRIL 1985

K/J 4101

SPECIFICATIONS

SPILL CLEANUP PLAN
PACIFIC AIRMOTIVE CORPORATION
BURBANK, CALIFORNIA

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PROPOSAL

PROPOSAL OF _____
(Name)

_____
(Address)

_____
(City and State)

to furnish and deliver all materials and to do and perform all work in accordance with the Contract Documents for SPILL CLEANUP PLAN for the PACIFIC AIRMOTIVE CORPORATION, this work being situated as follows:

PACIFIC AIRMOTIVE CORPORATION
2940 NORTH HOLLYWOOD WAY
BURBANK, CALIFORNIA 91505

TO: MR. CHRISTOPHER M. ANDREWS
MANAGER-ENGINEERING QUALITY CONTROL
AND FACILITIES
PACIFIC AIRMOTIVE CORPORATION
2940 NORTH HOLLYWOOD WAY
BURBANK, CALIFORNIA 91505

Gentlemen:

The undersigned bidder has carefully examined the Contract Documents and also the site of the work and will provide all necessary labor, machinery, tools, apparatus, and other means of construction, and do all the work and furnish all material called for by the Contract Documents in the manner prescribed therein, and in accordance with the requirements of the Engineer under them, for the following lump sum prices and unit prices. Bid Items are described in detail in paragraph 1-37 of the Special Conditions.

All bidders must complete Bid Schedule A, which requires a steel interlocking sheet piling shoring system for the protection of structures adjacent to the excavation areas. The Contractor, at his option, may also complete Schedule B, which is based on an alternative bracing system that the Contractor may propose. If Schedule B is completed by the Contractor, a detailed description and plans showing typical construction details of the proposed shoring and bracing system must accompany the Contractor's Proposal.

The Owner, at his option, may award the Contract with a basis of payment specified by Schedule A or Schedule B. Prior to the award of the Contract under Schedule B, plans for the alternative bracing and shoring system proposed by the Contractor must be submitted to the Engineer for favorable review. These plans must be signed by a civil or structural engineer registered in the State of California. Only after the alternative bracing and shoring system receives favorable review by the Engineer will the Contract be awarded and the Notice to Proceed given to the Contractor.

SCHEDULE A - STEEL INTERLOCKING SHEET PILING BRACING AND SHORING SYSTEM

Item	Unit	Description of Price Written in Words	Unit Price in Figures
A1.	Lump Sum	For all labor, materials, and equipment: for the design, installation and optional removal (unless otherwise specified) of all sheeting, shoring and bracing required for excavation; for removal and disposal, off-site, of paving; for excavation and disposal of all excavated soil or accumulated water at a State permitted Class I or Class II-1 disposal facility; and for import, placement, and compaction of clean fill material to a depth of 25 feet in Area 1 designated in the Drawings, for the lump sum amount of _____ _____ _____ Dollars	$ _____
A2.	Lump Sum	For all labor, materials, and equipment: for the design installation and optional removal (unless otherwise specified) of all sheeting, shoring and bracing required for excavation; for removal and disposal, off-site, of paving; for excavation of soil and disposal of all excavated soil or accumulated water at a State permitted Class I or Class II-1 disposal facility; and for import, placement, and compaction of clean fill material to a depth of 25 feet in Area 2 designated in the Drawings, for the lump sum amount of _____ _____ _____ Dollars	$ _____

Item	Unit	Description of Price Written in Words	Unit Price in Figures
A3.	Vertical Excavated Foot	For all labor, materials and equipment required for incremental excavation below a depth of 25 feet to a maximum depth of 30 feet in Area 2. Unit price to include all labor, materials and equipment for installation and removal of additional bracing for sheeting system installed as part of Bid Item 2, if required; for excavation of all soil and accumulated water, and disposal of excavated soil and "hazardous" wastes at a State permitted Class I or Class II-1 disposal facility; and for import, placement, and compaction of clean fill material, for the unit price per vertical excavated foot of _____ _____ _____ _____ Dollars	$ _____
A4.	Lump Sum	Amount to be deducted from total project cost for extending period of construction 30 calendar days, for the lump sum amount of _____ _____ _____ _____ Dollars	$ _____

SCHEDULE B - ALTERNATIVE BRACING AND SHORING SYSTEM PROPOSED BY CONTRACTOR

Item	Unit	Description of Price Written in Words	Unit Price in Figures
B1.	Lump Sum	For all labor, materials, and equipment: for the design, installation and optional removal (unless otherwise specified) of all sheeting, shoring and bracing required for excavation; for removal and disposal, off-site, of paving; for excavation and disposal of all excavated soil or accumulated water at a State permitted Class I or Class II-1 disposal facility; and for import, placement, and compaction of clean fill material to a depth of 25 feet in Area 1 designated in the Drawings, for the lump sum amount of _____ _____ _____ Dollars	$ _____
B2.	Lump Sum	For all labor, materials, and equipment: for the design installation and optional removal (unless otherwise specified) of all sheeting, shoring and bracing required for excavation; for removal and disposal, off-site, of paving; for excavation of soil and disposal of all excavated soil or accumulated water at a State permitted Class I or Class II-1 disposal facility; and for import, placement, and compaction of clean fill material to a depth of 25 feet in Area 2 designated in the Drawings, for the lump sum amount of _____ _____ _____ Dollars	$ _____

Item	Unit	Description of Price Written in Words	Unit Price in Figures
B3.	Vertical Excavated Foot	For all labor, materials and equipment required for incremental excavation below a depth of 25 feet to a maximum depth of 30 feet in Area 2. Unit price to include all labor, materials and equipment for installation and removal of additional bracing for sheeting system installed as part of Bid Item 2, if required; for excavation of all soil and accumulated water, and disposal of excavated soil and "hazardous" wastes at a State permitted Class I or Class II-1 disposal facility; and for import, placement, and compaction of clean fill material, for the unit price per vertical excavated foot of _____ _____ _____ _____ Dollars	$ _____
B4.	Lump Sum	Amount to be deducted from total project cost for extending period of construction 30 calendar days, for the lump sum amount of _____ _____ _____ _____ Dollars	$ _____

The undersigned has examined the location of the proposed work and is familiar with the Plans and Specifications and the location conditions at the place where the work is to be done. The undersigned has checked all the above figures and understands that the Owner will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

The foregoing figures shall include the cost of insurance, sales and tax and every other item of expense incident to the contract.

It is understood and agreed by the undersigned that the Plans and Specifications loaned to the Bidders for estimating purposes are the property of the Owner and that those Plans and Specifications must be returned to the Owner prior to or at the bid time. Bidders must submit two (2) copies of the completed, signed, and dated Proposal by 12:00 noon, 19 April 1985, to Kennedy/Jenks Engineers, 657 Howard Street, San Francisco, California 94105. As time is of the essence in beginning work at the site, bidders are encouraged to submit the Proposal prior to this date. The Proposal shall remain in effect for sixty (60) days after the stated bid time.

It is understood and agreed that the undersigned shall complete the work of the contract within the time provided for in the Contract Documents and Specifications.

Dated_____ _____
Business Name

_____

Business Address:

_____ By_____

_____ Title_____

Telephone_____ Contr. License No._____

EXPERIENCE QUALIFICATIONS
(To Accompany Proposal)

The bidder has been engaged in the contracting business, under the present business name, for _____ years. Experience in work of a nature similar to that covered in the proposal extends over a period of years.

The bidder, as a contractor, has never failed to satisfactorily complete a contract awarded to him, except as follows:

_____

The following hazardous waste contracts have been satisfactorily completed in the last three years for the persons, firm or authority indicated, and to whom reference is made: (List at least five)

Year	Type of Work	Contract Amount	Location and for Whom Performed
____	_____	_____	_____
____	_____	_____	_____
____	_____	_____	_____
____	_____	_____	_____
____	_____	_____	_____
____	_____	_____	_____
____	_____	_____	_____

The following is a list of plant and equipment owned by the bidder, which is definitely available for use on the proposed work as required.

Quantity	Name, Type and Capacity	Condition	Location
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Signed _____

_____
Title (Same as for signature on proposal)

DESIGNATED HAZARDOUS WASTE DISPOSAL SITE
(To Accompany Proposal)

If awarded the contract, the bidder proposes to use the following disposal site for disposal of excavated soil or water contaminated with jet fuel in accordance with permit requirements of the site.

Name of Site: _____

Address of Site: _____

_____

Class of Disposal Unit: _____

Site Identification Number: _____

Contact Person and Telephone Number: _____

_____

SUBCONTRACTORS
(To Accompany Proposal)

If awarded the contract, the bidder proposes to employ the following subcontractors who will perform work or labor or render service to the bidder in or about the work in an amount in excess of one-half of one percent (0.5%) of the total amount of bidder's proposal. If no subcontract work is proposed, except within the one-half of one percent (0.5%) limit set forth, the bidder shall so state.

NAME & ADDRESS OF SUBCONTRACTOR	DESCRIPTION OF WORK TO BE SUBCONTRACTED	SUBCONTRACTOR'S CALIF. LIC. NO.

Bidder_____

By_____

DIVISION 0

AGREEMENT

AGREEMENT

THIS AGREEMENT, entered into this _____ day of _____,

198___, by and between _____,

hereinafter called "CONTRACTOR", and Pacific Airmotive Corporation,

hereinafter called "OWNER",

WITNESSETH: That the parties hereto have mutually covenanted and agreed as follows:

That for and in consideration of the covenants and agreements hereinafter contained on the part of the OWNER, and the sums of money hereinafter designated to be paid to the CONTRACTOR by the OWNER in the manner and form as hereinafter in attached specifications provided, the CONTRACTOR hereby covenants and agrees to and with the OWNER, to furnish labor, tools, appliances, equipment, plant and transportation, and any and all other expenses necessary or incidental to the performance of certain work hereinafter specified, and to furnish, construct, and complete the work as described in detail in the plans and specifications for the: excavation and transport of excavated material to appropriate disposal facilities.

The bid items awarded and prices to be paid therefor are as follows: _____

_____

_____

_____

_____

_____

Each of the Contract Documents are incorporated herein by reference as though set forth in their entirety. Said documents include, but are not limited to, the Proposal, Agreement, Special Conditions and Technical Specifications, all Plans and Drawings, and any addenda to the documents.

It is intended by the parties that the Contract Documents be complementary and supplementary to each other, and that any term or condition called for by one such document and not called for by another, be as binding as if called for by each and every such document and shall be executed in the same manner as if mentioned in all Contract Documents.

The CONTRACTOR has satisfied himself by his own investigation and research regarding all conditions affecting the work to be done and materials to be furnished and as to meaning and intention of the Contract Documents and Plans and Specifications referred to herein.

CONTRACTOR shall submit his Excavation Plan within four (4) calendar days of date of Notice to Proceed. The Excavation Plan is described in detail in SECTION 02200, EXCAVATION, of the Technical Specifications. The CONTRACTOR shall begin work within two (2) calendar days after favorable review of the Excavation Plan by the OWNER.

NOTICE TO PROCEED: The successful bidder will receive a verbal Notice to Proceed from the OWNER within the sixty (60) calendar days of the date of Proposal submittal deadline specified hereinbefore. The OWNER will subsequently transmit two (2) copies of the signed Agreement to the successful CONTRACTOR. The CONTRACTOR will return to the OWNER a signed, dated, and executed Agreement within three (3) days of receipt of the Agreement.

SCOPE OF WORK: Except as otherwise expressly provided for or excluded by the Contract Documents, the CONTRACTOR shall furnish all tools, equipment, services, apparatus, facilities, drawings, machinery, hoists, models, power, transportation, labor and materials, for and shall perform the work necessary in strict accordance with the Contract Documents, including all plans and specifications.

IN WITNESS WHEREOF, this Agreement has been duly executed by the above named parties, on the day and year first above written.

OWNER:

_____

_____

BY_____

Title_____

CONTRACTOR:

_____

_____

BY_____

Title_____

BY_____

Title_____

Authorized Officers or Agents

(Corporate Seal)

License No._____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, organized and existing under the laws of the State of _____, and authorized to execute bonds and undertaking as sole surety, as Surety, are held and firmly bound unto any and all persons named in California Civil Code Section 3181 whose claim has not been paid by the Contractor, company or corporation in the aggregate total of _____ _____ Dollars ($_____) for the payment whereof, well and truly to be made, said Principal and Surety bond themselves, their heirs, administrators, successors, and assigns, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such that, whereas the above bounden Principal has entered into a Contract dated _____ _____, 198__, with Pacific Airmotive Corporation (Owner) to do the following work, to-wit: excavate and transport excavated material to disposal facilities.

NOW, THEREFORE, if the above bounden Principal, contractor, person, company, or corporation, or his or its subcontractor, fails to pay any of the persons named in Section 3181 of the Civil Code of the State of California, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the contractor and his subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor that the Surety or Sureties will pay for the same, in an amount not exceeding 100% of awarded contract prices in the form of a bond, and also, in case suit is brought upon the bond, a reasonable attorney's fee to be fixed by the Court.

This bond shall inure to the benefit of any person named in Section 3181 of the Civil Code of the State of California so as to give a right of action to them or their assignees in suit brought upon this bond.

This bond is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in Civil Code Sections 3247-3252, inclusive, and all amendments thereto.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work to be performed thereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this bond; and it does hereby waive notice of any

such change, extension of time, alteration, or addition to the terms of the Contract, or to the work, or to the Specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____, 198__, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____

_____

(SEAL) _____
Principal

By: _____

Title: _____

_____

_____

(SEAL) _____
Surety

By: _____

Title: _____

DIVISION 1

SPECIAL CONDITIONS

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DIVISION 1

SPECIAL CONDITIONS

1-01 WORK TO BE DONE

The project consists of excavating soil containing jet fuel and transporting material containing jet fuel to a State permitted Class I or Class II-1 disposal facility. The Contractor shall use trucks registered for transport of hazardous material under DOHS, DOT and applicable regulations. Paving covers portions of all areas to be excavated, Contractor shall remove paving and dispose of off-site.

The Contractor shall be responsible for protecting all buildings, structures or utilities and conduits in the vicinity of the excavation from failure due to excavation activities.

The Contractor will import satisfactory backfill, and place and compact the backfill to the original grade.

1-02 DEFINITIONS

The following terms shall be as defined herein when used in these Specifications or the Contract Documents.

Owner. The word "Owner" shall mean Pacific Airmotive Corporation. The Owner's representative shall be Mr. Christopher Andrews or his designate.

Contractor. The word "Contractor" means the person, firm, or corporation with whom the Contract Agreement is made by the Owner for the performance of the work herein described. The Contractor shall be on the work site at all times or represented by a superintendent or duly designated agent. Instructions and information tendered by the Engineer to the Contractor's superintendent or agent on the work site shall be considered as having been received by the Contractor.

Engineer. The term "Engineer" refers to the engineer or the person designated by the Owner for purposes of administration of the Contract. On all questions concerning the acceptability of materials and construction, the decision of the Engineer and his duly authorized assistants shall be final.

Design Engineer. The term "Design Engineer" means Kennedy/Jenks Engineers, Inc., 657 Howard Steet, San Francisco, CA 94105.

Contract Date. The term "Contract Date" shall mean the date of the Notice to Proceed with the work.

Drawings. "Drawings" shall mean Plans.

Days. The word "Days" shall mean calendar days, unless specifically noted otherwise.

Contract Documents. The words "Contract Documents" shall mean any or all of the following items, as applicable:

The Proposal Documents
Proposal
Contract
    Contract Agreement
    Payment Bond (if awarded)
Special Conditions
Technical Specifications
Drawings
Addenda or Clarifications, if any
Executed Change Orders, if any

Each of these items is to be considered by reference as part of the Contract Agreement.

1-03 EXAMINATION OF SITE, DRAWINGS, POTENTIAL UTILITIES, ETC.

Each bidder shall visit the site of the proposed work and fully acquaint himself with local conditions, construction and labor so that he may fully understand the facilities, difficulties, and restrictions attending the execution of the work under the Contract. Bidders shall thoroughly examine and be familiar with the Drawings and Specifications. The failure of any bidder to receive or examine any form, instrument, addendum, or other document, or to visit the site and acquaint himself with conditions there existing shall in no way relieve the bidder from any obligation with respect to his proposal or to the Contract. The Owner will make available to the Contractor any available facility plans that indicate building construction details or site plans showing the location of underground utilities. These facility and site plans show conditions as they may exist; but it is neither intended nor to be inferred that the conditions as shown thereon constitute a representation by the Design Engineer, the Owner, or their officers, that such conditions are actually existent, nor shall the Owner, the Design Engineer, or any of their officers or representatives be liable for any loss sustained by the Contractor as a result of any interference or extrapolation drawn by the Contractor from conditions as shown on the Drawings and the actual conditions revealed during the progress of the work, or otherwise.

The bidder's attention is directed to the possible existence of obstructions, which may be within the limits of the work or adjacent thereto, which may or may not be shown on the facility or site plans referred to above. The Owner will mark the location of known utilities prior to commencement of excavation work. The Contractor will be

responsible for verifying the location of these utilities with exploratory "potholes" prior to beginning excavation.

The Contractor will also be responsible for contacting appropriate underground utility locating services to determine if additional utilities transverse the excavation site shown in the Drawings.

The bidder shall investigate to his satisfaction as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of these Drawings and Specifications, and the Contract. It is mutually agreed that submission of a proposal shall be considered conclusive evidence that the bidder has made such examination and has accepted the project site as a safe workplace to perform his work.

1-04 EXISTING UTILITIES AND FACILITIES

a. The precise location of underground facilities can only be determined by careful probing or hand digging in compliance with Article 6 of the OSHA Construction Safety Orders which states in part:

> "Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the approximate location of such an installation, the exact location shall be determined by careful probing or hand digging, and, when it is uncovered, adequate protection shall be provided for the existing installation."

b. Care shall be exercised by the Contractor to prevent damage to adjacent walks, streets, culverts, and gutters; where equipment will pass over these obstructions, suitable planking shall be placed.

c. The Contractor shall adopt all practical means to minimize interference to traffic and inconvenience, discomfort, or damage. All obstructions to traffic shall be guarded by flagmen as required and by barriers and illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by his operations, and under all circumstances he shall comply with the regulations of the City or County, and the laws and regulations of the State of California, relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdiction, and he shall be solely responsible for any damages caused by failure to provide proper safety.

The Contractor will be held responsible for and required to make restitution, at his own expense, for all damage to persons or property caused by the Contractor or subcontractor, or the agents, or employees of either, during the progress of the work and until its final acceptance.

1-05 INTERPRETATION OF CONTRACT DOCUMENTS/RESTRICTION

If any bidder should find discrepancies in, or omissions from, the Drawings, the Specifications, or other proposed Contract Documents, or if he should be in doubt as to the true meaning of any part thereof, he shall at once, but not later than five (5) calendar days before the scheduled opening time of bids, make a written request to the Engineer for correction, clarification, or interpretation of the point or points in question. The person submitting such request shall be responsible for its prompt delivery.

In the event that the Engineer received such a request, and it should be found that certain essential information is not clearly and fully set forth, or if the Engineer discovers errors, omissions, or points requiring clarification in the Drawings or documents, a written addendum will be mailed to each person to whom a set of Contract Documents has been delivered. The Owner and the Engineer will not be responsible for any instructions, explanations, or interpretations of the documents presented to bidders in any manner other than by written addendum.

The bidder, by submission of his bid, confirms he has familiarized himself with the Plans and Specifications and has found them fit and sufficient for the purpose of preparing his bid. By submission of his bid he agrees that no claim will be made against the Owner or the Design Engineer or their officers, directors, employees and agents, for any damages. This limitation does not apply to compensation for extra work authorized by the Owner. The bidder in no way assumes liability for damages to others for the professional negligence, errors or omissions of the Design Engineer.

1-06 ADDENDA

Any addenda or clarifications supplementing the Drawings and Specifications and issued prior to the time set for the opening of proposals, and/or forming a part of the documents furnished to the bidder for the preparation of his proposal, shall be covered in the proposal and shall be made a part of the Contract.

1-07 GUARANTEE OF WORK

The Contractor shall guarantee the work done under this Contract against failures, breaks or other unsatisfactory conditions due to defective equipment, materials, or workmanship for a period of one (1) year from the date of final acceptance of the entire facility. The one year guarantee period shall commence on the day when the single payment constituting the final payment is made. It is understood that partial or entire use or occupancy of the work does not constitute acceptance, but rather a benefit to the Contractor from the Owner to enable the Contractor to complete the work. Any repair work or replacement required, in the opinion of the Engineer, shall be done immediately by the Contractor at his own expense. Should the Contractor fail to

repair such failures, leaks, breaks, or other unsatisfactory conditions or to make replacement within five (5) days after written notice, it shall be lawful for the Owner to make such repairs and replacements and charge the Contractor with the actual costs of such necessary labor and material.

The Owner is hereby authorized to make such repairs, if, within five (5) days after mailing of a notice in writing to the Contractor or to his agent, the Contractor shall neglect to make or undertake with due diligence the aforesaid repairs; provided, however, that in the case of an emergency where in the opinion of the Owner delay would cause hazard to health or serious loss or damage, repairs may be made without notice being sent to the Contractor, and the Contractor shall pay the cost thereof.

1-08 RIGHTS OF ACTION

No right of action shall accrue upon or by reason of this agreement to or for the use or benefit of anyone other than the parties to this agreement. The parties to this agreement are the Contractor and the Owner.

1-09 PERMITS AND FEES

The Contractor shall comply with all requirements of the City of Burbank, and the State on notifications, protective signs, and other construction conditions. Contractor shall obtain a City grading permit, if required. The Contractor shall also obtain an excavation permit from the South Coast Air Quality Management District.

In construction of trenches that are five feet or deeper which a person is required to descend, a permit will be required from CAL/OSHA. The Contractor shall secure the permit at his cost and shall submit a copy of it to the Engineer prior to trenching in deep section.

Any permits, bonds, and licenses required for the performance of work under this Contract and not specifically mentioned herein as having been obtained by the Owner shall be obtained and paid for by the Contractor. The Contractor shall pay all fees for required licenses.

1-10 LANDS AND RIGHTS-OF-WAY

Work will be on land owned by Pacific Airmotive Corporation.

The Owner will not accept any responsibility for damage or loss of the Contractor's equipment or materials stored on any project related site caused by vandalism, nature, or otherwise, suffered by the Contractor. Protection of all construction equipment, stores, and supplies shall be the sole responsibility of the Contractor.

Where additional work space is desired by the Contractor, it shall be the Contractor's sole responsibility and expense to obtain such space for his use. The acquisition of any such work space shall be coordinated with the Owner and evidence for right of occupancy shall be provided.

1-11 COMPLIANCE WITH LAWS

The Contractor shall keep himself and his subcontractors fully informed of all existing and future State and Federal laws and City and County ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials and equipment used in the work, or which in any way affect the conduct of the work, and all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings or Specifications, or in this Contract, in relation to any such law, ordinance, regulation, order, or decree, the Contractor shall forthwith report the same to the Engineer in writing. He shall at all times observe and comply with all such existing and future laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner, the Design Engineer, and all of their officers, agents, and servants against any claim or liability arising from or based upon the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor himself or by his employees. Particular attention is called to the following:

a. Equal Employment Opportunity:

(1) During the performance of this Contract, the Contractor shall comply with applicable provisions of the Civil Rights Act, as amended, and with other applicable laws, regulations or orders issued by a governmental agency exercising jurisdiction over the Contractor's employment practices. Special attention is directed to Section 1735 and 1410 through 1433 of the Labor Code of the State of California and requirements of the Federal Labor Standards Act; all applicable provisions of these referenced documents shall apply.

(2) The Contractor shall afford Equal Employment Opportunity to all otherwise qualified persons without regard to race, color, religion, national origin, sex or age. The Contractor shall establish and enforce procedures and practices to insure Equal Employment Opportunity in recruiting, hiring, training, upgrading, promotions, transfers, layoff, recalls, terminations, compensation, working conditions, benefits and privileges.

b. Regulatory Requirements. The Contractor shall be solely responsible for performing all work in accordance with all applicable Federal, State and local laws, ordinances, statutes, rules and regulations. Particular attention is directed to the following:

(1) California Occupational Safety and Health (OSHA) Rules and Regulations.

(2) South Coast Air Quality Management District Rules and Regulations.

(3) California Hazardous Waste Control Law and Regulations.

c. Worker's Compensation Insurance. The provisions of Paragraph 1-33 shall be considered as repeated herein.

d. Lateral and Subjacent Supports. Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral and subjacent supports, and wherever structures or improvements adjacent to the excavation may be damaged by such excavation, the Contractor shall comply with this law.

e. Permits and Licenses. The Contractor shall give all notices and comply with laws, ordinances, rules and regulations applicable to the work. If the Contractor observes that the Specifications or Drawings are at variance therewith, the Contractor shall give the Owner prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the Contractor performs any work knowing or having reason to know that it is contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, the Contractor shall bear all costs arising therefrom.

f. Safety Standards. The Contractor shall comply with provisions of the Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act (40 USC 327 et seq.) as set forth in Title 29, C.F.R., CAL/OSHA, State Department of Health Services requirements of hazardous wastes, and the regulations issued thereunder. Compliance shall be the Contractor's sole responsibility, and neither the Owner nor the Design Engineer shall have any liability for non-compliance. See Paragraph 1-16 for additional safety requirements.

1-12 NOISE CONTROL

The Contractor shall comply with all applicable noise control regulations.

The Contractor shall use only such equipment on the work, and in such state of repair, that the emission of sound therefrom is within the noise tolerance level of that equipment; as established by accepted standards of the industry. Should it be determined that the muffling device on any equipment used on the work is ineffective or defective so that the noise tolerance of such equipment, as established by accepted standards of the industry, is exceeded, such equipment shall not, after such determination, be used on the work until its muffling device is repaired or replaced so as to bring the noise tolerance level of such equipment within such standards.

1-13 SITE CLEANUP

Upon completion of the work or in case of any earlier termination of the Contract, the Contractor shall remove from the vicinity of the work, at the Contractor's sole cost and expense, all unused materials belonging to the Contractor or used under the Contractor's direction during construction and all temporary structures, rubbish and waste materials resulting from the Contractor's operation. The Contractor shall leave the premises in a neat and clean condition without holes or pitfalls. In the event of the Contractor's failure to perform his obligations under this paragraph, the Owner may cause the same to be performed at the expense of the Contractor, and the Contractor's surety or sureties shall be liable therefor.

The Contractor shall regularly clean up the work site to maintain safety for access and to avoid fire hazard. All scrap lumber, scrap metal, wire or other scrap building materials shall be regularly hauled away. The Contractor shall keep the construction site neat at all times.

1-14 ROADS AND FENCES

Roads and building access subject to interference by the prosecution of the work covered by this Contract shall be kept open, and the fences subject to interference shall be maintained by the Contractor until the work is completed. Fences disturbed by the Contractor during the work shall be replaced to their original condition unless specifically shown otherwise on the Drawings. Such signs and barricades as are required by local laws and as are necessary shall be provided.

1-15 DUST CONTROL

During the performance of all work under this Contract, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment, and means required to carry out proper and efficient measures wherever and whenever dust control is necessary to prevent his operations from producing dust damage and nuisance to persons and property. Any claims resulting from dust damage or nuisance shall be borne solely by the Contractor.

1-16 SAFETY

In accordance with generally accepted construction practices and State Law, the Contractor shall be solely and completely responsible for conditions on the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.

The services of the Engineer in conducting construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's work methods, equipment, bracing or scaffolding, or safety measures, in, on, or near the construction site.

The Contractor is hereby informed that work on this project could be hazardous, particularly as related to volatile organic chemicals and other hydrocarbons present in jet fuel found in the soil in the area. The Contractor shall carefully instruct all personnel working in potentially hazardous work areas as to potential dangers and shall provide such necessary safety equipment and instructions as are necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to work underground or in excavated areas.

All work and materials shall be in strict accordance with all applicable State, City, County, and Federal Rules, Regulations, and Codes, and attention is drawn to the requirements of CAL/OSHA.

In accordance with Section 6500 through 6510 of the State Labor Code, the Contractor shall obtain a permit for all work subject to the requirements thereof. This in no way relieves the Contractor from the requirement of maintaining safety in all operations performed by him or his subcontractors.

Because the project involves contact with contaminated and hazardous materials, the contractor shall instruct all site workers as to precautions that must be taken. He shall provide all necessary and required safety equipment and suppliers.

Notwithstanding any classifications relative to the Tunnel Safety Orders, work within confined spaces on this project is subject to the definitions and applicable provisions of Section 5156 et seq., Title 8, California Administrative Code.

The Contractor shall so perform its work as not to expose personnel or to discharge into the atmosphere from any source whatever smoke, dust, asbestos, toxic chemicals, or other air contaminants in violation of the laws, rules, and regulations of the governmental entities having jurisdiction.

Nothing in these Specifications is to be construed to permit work not conforming to governing codes. When Contract Documents differ from governing codes, the Contractor shall furnish and install the higher standards called for without extra charge.

1-17 FAILURE TO PERFORM PROPERLY

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of the Contract, the Owner, after five (5) days written notice to the Contractor, may, without prejudice to any other remedy the Owner may have, make good such deficiencies and deduct the cost thereof from the payment then or thereafter due the Contractor.

1-18 RIGHT TO TERMINATE CONTRACT

If the Contractor should be judged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials to diligently pursue the work, or if he should fail to make prompt payment to subcontractors or for material or labor, or if he should persistently disregard laws, ordinances, or instructions of the Engineer, he may be determined by the Owner to be in violation of this Contract.

In the event that any of the provisions of this Contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve notice upon the Contractor and the Surety of its intention to terminate the Contract. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to take over and perform the Contract; provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by Contract or by force account for the account and at the expense of the Contractor, and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefor.

1-19 CONTRACTOR'S TEMPORARY UTILITY SERVICES

The Contractor may be required to truck in water for compacting backfill if his needs exceed water supply available.

The Contractor may utilize reasonable amounts of power up to 3/4 HP loads for his operations from plant electric service at no charge, but must provide all temporary facilities he requires.

1-20 PLANS AND SPECIFICATIONS

Specifications. Specifications shall include the Proposal, Agreement, Special Conditions, Technical Specifications, Addenda and Clarifications thereto.

In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed Drawings shall govern over general Drawings.

Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Draw-

ings or Specifications shall be immediately reported to the Engineer, followed by written notification, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

The Contractor shall keep on the work site a copy of the Specifications and Drawings and shall at all times give the Engineer access thereto. Any Drawings included in the detail Specifications shall be regarded as part thereof and of the Contract. Anything mentioned in these Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in these Specifications, shall be of like effect as though shown or mentioned in both. The Engineer will furnish from time to time such detail drawings, plans, profiles, and information as he may consider necessary for the Contractor's guidance, unless otherwise provided in the Proposal or detail Specifications. It shall be the duty of the Contractor to see that the provisions of these Specifications are complied with in detail irrespective of the inspection given the work during its progress by the authorized official or his representatives. Any failure on the part of the Contractor to observe the Specifications will be sufficient cause for the rejection of the work at any time before its acceptance. Only "favorably reviewed" shop drawings shall be used for construction.

1-21 SUBMITTALS

Where the Contractor is required by these Specifications to make submittals, they shall be made to the Engineer with a letter of transmittal and in sufficient number of copies to allow a distribution of at least one (1) copy to all parties needing a copy to carry out the provisions of the Specifications.

1-22 INSPECTION AND TESTING

The Contractor shall provide safe access for the Engineer and his inspectors to adequately inspect the quality of work and the conformance with project specifications. The Contractor shall provide adequate lighting, ventilation, ladders and other protective facilities as may be necessary for the safe performance of inspections.

The Contractor shall submit samples or specimens of such materials to be furnished or used in the work as the Engineer may require. The Contractor shall furnish the Engineer all necessary labor and facilities for such things as excavation in the compacted fill to depths required to take samples.

Inspections, tests or favorable review by the Engineer or others shall not relieve the Contractor from his obligations to perform the work in accordance with the requirements of the Contract Documents.

Work covered without the favorable review or consent of the Engineer shall, if required by the Engineer, be uncovered for examination at the Contractor's expense.

If the Engineer considers it necessary or advisable that covered work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such work is not found to be defective and the work was not covered without favorable review of the Engineer, the Contractor will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate change order shall be issued.

Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the Engineer so that proper inspection may be provided. Any work done in the absence of the Engineer shall be subject to rejection. Proper facilities for safe access for inspection to all parts of the work shall at all times be maintained for the necessary use of the Engineer and other agents of the Owner.

Upon final completion of the construction work and request by the Contractor, the Engineer will conduct a final inspection as a basis for recommending to the Owner that the work be accepted.

1-23 PROTECTION OF WORK, PROPERTY AND PERSONS

The Contractor's attention is directed to the presence of a potentially inflammable compound, jet fuel, in the soil in the excavation area. The Contractor will be responsible for conducting excavation and disposal activities with proper care and equipment to avoid fire hazards due to open flames and sparks.

The Contractor shall be responsible for the care of all work until its completion and final acceptance; and he shall, at his own expense, replace damaged or lost material and repair damaged parts of the work, or the same may be done at his expense by the Owner and the Contractor and his sureties shall be liable therefor. The Contractor shall make his own provisions for properly storing and protecting all material and equipment against theft, injury, or damage from any and all causes. Damaged material and equipment shall not be used in the work. The Contractor shall take all risks from floods and casualties and shall make no charge for the restoration of such portions of the work as may be destroyed or damaged by flood or other casualties or because of danger from flood or other casualties, or for delays from such causes. He may, however, be allowed a reasonable extension of

time on account of such delays, subject to the conditions hereinbefore specified. The Contractor shall remove from the vicinity of the completed work all plant, buildings, rubbish, unused material, concrete forms, sheeting or equipment belonging to him or used under his direction during construction; and in the event of his failure to do so, the same may be removed by the Owner at the expense of the Contractor, and the Contractor and his sureties shall be liable therefor.

The Contractor shall adopt all practical means to minimize interference to traffic and inconvenience, discomfort, or damage. The Contractor shall protect against injury structures crossing trenching or encountered in the work and shall be responsible for any injury done to such structures, or damage to property resulting therefrom. He shall support, or replace, any such structures without delay and without any additional compensation, to the entire satisfaction of the Engineer. All obstructions to traffic shall be guarded by flagmen as required and by barriers and illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by his operations, and under all circumstances he shall comply with the regulations of the City or County, and the laws and regulations of the State of California, relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdiction, and he shall be solely responsible for any damages caused by failure to provide proper safety.

The Contractor will be held responsible for and required to make restitution, at his own expense, for all damage to persons or property caused by carelessness or neglect on the part of the Contractor or subcontractor, or the agents, or employees of either, during the progress of the work and until its final acceptance.

1-24 CHARACTER OF WORKERS

None but competent foremen and workers shall be employed on work requiring special qualifications; and, when required by the Engineer, the Contractor shall remove from the work any person who commits trespass, or is, in the opinion of the Engineer, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. Such removal shall not be the basis of any claim for compensation or damages against the Engineer, the Owner, or any of its officers or representatives.

1-25 SECURITY

Existing fences will be secured and locked at the end of each day by the Contractor if his personnel leave the work area after the Owner's personnel. Existing fences enclose the present facilities at the site. The fences are for the protection and security of the present operating facilities. While it may be necessary for the Contractor to remove some of the fences for installation of new structures, fences and pipelines, the Contractor's operations shall not reduce the present protection and security. If the present fences are removed, an equiva-

lent temporary continuous perimeter protection shall be provided and new fence shall be installed in the locations shown, prior to completion of the work.

1-26 ACCESS FOR OPERATING PERSONNEL

The Contractor's attention is drawn to the fact that during the course of the work of this Contract, the existing facilities will be used and maintained by Owner personnel. The Contractor shall coordinate his work in such a way as to interfere as little as possible with the routine work of existing facility operation consistent with the necessity for making the connections as herein specified and as shown on the plans. Owner access shall be provided to existing buildings as indicated on Drawing No. 1.

1-27 COMPLIANCE WITH ENVIRONMENTAL LAWS

During construction, the Contractor shall comply with all pertinent requirements of Federal, State, and local environmental laws and regulations, including, but not limited to, the Federal Clean Air Act, State and local air pollution and noise ordinances, construction site erosion control regulations, and, if applicable, shoreline construction requirements. The Contractor will submit for approval by the Owner the location of disposal facilities. The Contractor will complete required hazardous waste transport manifests which will be signed by a representative of the Owner, who is the generator of the material.

1-28 COOPERATION WITH OTHER CONTRACTORS

This Paragraph shall serve as notice to the Contractor that the Owner may let other contracts for other work at or near the site of this work. The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work or in the vicinity of the work to be done under this Contract, the Contractor shall so conduct his operations so as to interfere to the least possible extent with the work of such other forces or contractors.

Any difference or conflicts which may arise between the Contractor and any other forces or contractors, creating delays or hindrance to each other, shall be adjusted as determined by the Engineer.

1-29 CHANGES IN THE WORK

The Owner shall have the right to make any reasonable changes in the Drawings or quantities determined to be necessary or expedient. In case such changes increase or diminish the work shown, the Contractor shall be paid for the work actually done at a mutually agreed upon

adjustment to the Contract price, based upon Contract unit prices or according to the provisions of Paragraph 1-30. The Contractor shall not be entitled to extra payment, nor shall any claim be made on account of anticipated profits on the work that may be omitted.

1-30 CHANGES IN CONTRACT PRICE

Whenever corrections, alterations, or modifications of the work under this Contract are ordered by the Engineer and approved by the Owner and increase the amount of work to be done, such added work shall be known as extra work; and when such corrections, alterations, or modifications decrease the amount of work to be done, such subtracted work shall be known as work omitted.

When the Contractor considers that any changes ordered involve extra work, he shall immediately notify the Engineer in writing and subsequently keep him informed as to when and where alleged extra work is to be performed and shall make claim for compensation therefor each month not later than the first day of the month following that in which the work claimed to be extra work was performed; and he shall submit a daily complete statement of materials used and expenses incurred on account of extra work performed, showing allocation of all materials and expenses.

All such claims shall state the date of the Engineer's written order and the date of approval by the Owner authorizing the work on account of which claim is made.

Unless such notification is made in writing and unless complete statements of materials used and expenses incurred on account of such alleged extra work are furnished as above required, the Contractor shall not be entitled to payment on account of such alleged extra work, and any future claims for compensation for such alleged extra work shall be invalidated.

When changes decrease the amount of work to be done, they shall not constitute a claim for damages on account of anticipated profits on the work that may be omitted.

The difference in cost of the work affected by such change will be added to or deducted from the amount of said Contract Price, as the case may be, by a fair and reasonable valuation, which shall be determined from lump sum and unit prices, specified in the Agreement.

It is understood that labor, materials, and equipment may be furnished by the Contractor, or by the subcontractor, or by others on behalf of the Contractor. When the work is performed by other than the Contractor's organization, the Contractor shall reach an agreement with such other forces as to the distribution of payments made for such, and no additional payment therefor will be made by the Owner.

In order that a proper estimate may be made by the Engineer of the net cost of labor and materials entering into extra work, in accordance with the procedure heretofore stated, the Contractor shall furnish weekly an itemized statement of material and labor supplied together with the cost of such material and the wages paid, and shall furnish vouchers for quantities and prices of such labor, material or work. In case the Contractor fails to comply with the above provisions, he shall have no claim for compensation against the Owner.

The Owner reserves the right to contract with any person or firm other than the Contractor for any or all extra work. The Contractor's attention is especially called to the fact that he shall be entitled to no claim for damages for anticipated profits on any portions of work that may be omitted.

Unless notification is made in writing and unless complete statements of materials used and expenses incurred on account of such alleged extra work are furnished as above required, the Contractor shall not be entitled to consideration for payment for alleged extra work, and any future claims for compensation for such alleged extra work shall be invalidated.

1-31 RIGHT TO WITHHOLD AMOUNTS

In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payments otherwise due the Contractor, as in its judgment may be necessary to cover:

a. Payments which may be past due and payable for just claims against the Contractor or any subcontractor for labor or materials furnished for the performance of this Contract.

b. For defective work not remedied.

c. For failure of the Contractor to make proper payments to his subcontractor.

d. A reasonable doubt that the Contract can be completed for the balance then unpaid.

e. Damage to another contractor or to property.

f. Failure of the Contractor to keep his work progressing in accordance with his time schedule or maintaining current "As-Built" records.

g. The Owner's costs for the Contractor's failure to complete within the allowed time or failure to notify.

h. Cost of insurance arranged by the Owner due to cancellation or reduction of the Contractor's insurance.

i. Failure of the Contractor to make proper submissions, as herein specified.

j. Failure to submit, revise, resubmit or otherwise conform to the requirements herein for construction scheduling.

When the above reasons for withhold amounts are removed, payment will be made to the Contractor for amounts withheld because of them.

The Owner in its discretion may apply any withheld amount or amounts to the payment of valid claims. In so doing, the Owner shall be deemed the agent of the Contractor, and any payment so made by the Owner shall be considered as a payment made under the Contract by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for such payment made in good faith. Such payments may be made without prior judicial determination of the claim or claims. The Owner will render to the Contractor a proper accounting of such funds disbursed in behalf of the Contractor.

1-32 PAYMENT OF TAXES

The Contractor shall pay, and shall assume exclusive liability for, all taxes levied or assessed on or in connection with his performance of this Contract, whether before or after acceptance of the work, including, but not limited to, State and local sales and use taxes, Federal and State payroll taxes or assessments, and excise taxes, and no separate allowance will be made therefor, and all costs in connection therewith shall be included in the total amount of the Contract price.

1-33 INSURANCE AND INDEMNITY

a. General. The Contractor shall not commence any work until he obtains, at his own expense, all required insurance. Such insurance shall have the approval of the Owner as to limit, form, and amount. The Contractor shall not permit any subcontractor to commence work on this project until the same insurance requirements have been complied with by such subcontractor.

Companies writing the insurance under this article shall be licensed to do business in the State of California or be permitted to do business under the Surplus Line Law of the State of California. Contractors shall include all costs for insurance in the bids.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operations under this Contract. Coverage required hereunder shall operate as Primary insurance.

b. Indemnity. To the fullest extent permitted by law, the Contractor agrees to protect, defend, hold harmless and indemnify Purex and Kennedy/Jenks Engineers, Inc. and each of their officers,

ing the Contractor's operations and the work performed for the Owner on the job site. Such policy shall have a combined single limit of not less than $1,000,000 per occurrence for bodily injury and property damage.

(6) Automobile Liability Insurance - including Non-Ownership Liability Endorsement in the Contractor's name. Limits of liability shall not be less than $2,000,000 per occurrence for bodily injury and property damage.

(7) All of the above insurance coverage should, wherever possible, be carried with the same insurance company (to eliminate confusion as to exactly which insurance company is responsible for handling the claims).

d. Evidence of Insurance:

(1) Evidence of Insurance - Before work is started, the Contractor shall forward to the Owner two (2) copies of a certificate of insurance or memorandum of insurance evidencing that all required insurance is in force executed by an authorized representative of the insurance company. For verification of Owner's Protective Liability, the Contractor shall provide a copy of the policy.

(2) The Contractor hereby certifies to Pacific Airmotive Corporation and Kennedy/Jenks Engineers, Inc., that similar certificates or memorandum evidence of insurance from each subcontractor shall be obtained before their work commences. Each subcontractor must be covered by insurance of the same character and in the same amounts (except for Public Liability and Contractual Liability Insurance, where bodily injury limits can be in an amount of not less than $2 million per occurrence) as for the Contractor unless the Contractor agrees to lesser limits because of the nature of the particular subcontract work.

(3) Builder's Risk Insurance. "All Risk" Builder's Risk Insurance, in an amount equal to the Contract price, shall be obtained, paid for, and maintained by the Contractor and shall cover, but shall not be limited to, fire, lightning, windstorm, hail, explosion, riot, riot attending a strike, civil commotion, smoke damage, damage by aircraft or vehicles, vandalism and malicious mischief, theft, collapse, flood, and earthquake. This insurance shall name the Owner, the Design Engineer, and the Contractor as insureds and shall include coverage, but not by way of limitation, for all damage or loss to the work and to appurtenances, to materials and

equipment to be used on the project while the same are in transit, stored on or off the project site, to construction plant and temporary structures.

1. Such insurance may have a deductible clause not to exceed the below listed limits:

   (a) Flood and earthquake deductible shall not exceed 2 percent of the value at risk at the time of risk.

   (b) All other perils: $5,000.

2. The policy shall provide the Owner the right to occupy the premises without termination of the policy until acceptance of the project.

e. Injury or Illness Reports. The Contractor shall furnish the Engineer with a copy of the Employer's Report of Injury not later than 24 hours following any incident requiring the filing of said report during the prosecution of the work under this Contract. The Contractor shall also furnish the Engineer with a copy of the Employer's Report of injury involving any subcontractor on this project.

f. Notification of Insurance Companies. The Contractor shall advise all insurance companies to familiarize themselves with all of the Conditions and provisions of this Contract, and they shall waive the right of special notification of any change or modification of this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by the Owner or its authorized employees and agents, under the terms of this Contract, and failure to so notify the aforesaid insurance companies of changes shall in no way relieve the insurance companies of their obligation under this Contract.

g. Insurance During Guarantee Period. For all work the Contractor or his subcontractors perform during the guarantee period, worker's compensation, public liability and property damage insurance and comprehensive general liability insurance shall remain in force.

1-34 TIME OF COMPLETION

Time is the essence of this agreement.

The Contractor shall provide an Excavation Plan within four (4) calendar days of the Notice to Proceed.

The Contractor shall commence excavation within two (2) days after the Excavation Plan receives favorable review by the Owner.

All work hereunder shall be completed within sixty (60) calendar days of the Notice to Proceed.

It is agreed by the parties to the Contract that it is and will be impractical to determine the actual damage which the Owner will sustain in the event of and by reason of delay; and it is therefore agreed that the Contractor will pay to the Owner the sum of one hundred dollars ($100) per calendar day for each and every day's delay beyond the completion dates specified, as liquidated damages and not as a penalty. The Contractor agrees to pay such liquidated damages and, in case the same are not paid, agrees that the Owner may deduct the amount thereof from any money due, or that may become due the Contractor, under the Agreement.

1-35 PRE-CONSTRUCTION CONFERENCE

Prior to the start of construction the Owner will conduct a pre-construction conference. At the conference the Owner will review the planned development with the Engineer, Contractor, and other interested parties.

1-36 DELAYS

If any delay to the Contractor is caused by specific order of the Owner to stop work, or by the performance of extra work ordered by the Owner, or by failure of the Owner to provide the necessary site for installation, or by unforeseen causes beyond the control of the Contractor, and without the fault or negligence of the Contractor, including but not restricted to acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and to any delays of subcontractors occasioned by any of the causes specified above; such delay will entitle the Contractor to an equivalent extension of time, except as otherwise provided in the paragraphs herein covering "Right to Terminate Contract." Application for extension of time shall be presented in writing to the Engineer for approval and shall be accompanied by the formal consent of the sureties, but an extension of time, whether with or without such consent, shall not release the sureties from their obligation, which shall remain in full force until the discharge of the Contract. The decision of the Engineer with regard to such requests shall be final.

It is the responsibility of the Contractor to order equipment and materials required for the work properly and promptly on Notice to Proceed. If evidence presented demonstrates that, in spite of the Contractor's efforts, government-established priorities controls delay material deliveries, suitable extension of time will be made.

1-37 BASIS OF PAYMENT

Payment will be based upon the unit prices and Lump Sum costs incurred as set forth in the Agreement. Schedule A bid items are based on a steel interlocking sheet piling bracing and shoring system.

Schedule B bid items are based on an alternative bracing and shoring system proposed by the Contractor. This alternative system must provide, at a minimum, an equivalent measure of protection to structures adjacent to the excavation areas to that provided by steel interlocking sheet piling. Before the Contract is awarded under Schedule B, the Contractor must submit, for favorable review by the Engineer, bracing and shoring plans signed by a civil or structural engineer registered in the State of California.

The basis of payment (Schedule A or B) will be at the option of the Owner. The Contractor must be able to complete excavation and backfilling operations within the 60 calendar day construction period if the alternative bracing and shoring system is allowed under Schedule B.

SCHEDULE A - STEEL INTERLOCKING SHEET PILING BRACING AND SHORING SYSTEM

Bid Item A1 - This bid item shall cover all costs for labor, materials and equipment for design, installation and optional removal (unless otherwise specified) of sheeting, shoring and bracing of excavations to protect adjacent structures and to allow safe excavation in Area 1. Excavation in Area 1, as indicated in the Drawings, will be to a depth of 25 feet and is in soil classified as "hazardous" due to the presence of jet fuel or other hydrocarbons.

This bid item shall also cover the cost of supply, transport, delivery to the site, placement and compaction of specified fill material required for backfilling in Area 1 from a depth of 25 feet to the ground surface. During backfilling, bracing shall be systematically removed. After backfilling is completed, sheeting may be removed, except in those locations shown in the Drawings where it will be required to remain for protection of existing structures.

Also included in this bid item are costs for the documentation, transportation and disposal to a State permitted Class I or Class II-1 disposal facility of "hazardous" soil or water removed from the site by Contractor. This material is classified as "hazardous" due to the presence of jet fuel or other hydrocarbons. Copies of laboratory analyses of soil samples collected from soil borings within and surrounding Area 1 are available upon request from the Owner. Included in this bid item is the removal and disposal of paving that covers some portions of Area 1.

This bid item shall also cover the costs relating to work performed in Area 1 for: furnishing the Owner a Payment Bond to assure payment of all billings incurred by the Contractor; equipment and personnel move on and move off costs; insurance; all required permits and all required permit fees; security provisions; preparation of Excavation Plan; rainfall protection; removal of water from Area 1 excavations; and final site cleanup.

Bid Item A2 - This bid item shall cover all costs for labor, materials and equipment for design, installation and optional removal (unless otherwise specified) of sheeting shoring and bracing of excavations to protect adjacent structures and to allow safe excavation in Area 2. Excavation in Area 2, as indicated in the Drawings, shall be to a depth of 25 feet, and is in soil classified as "hazardous" due to the presence of jet fuel or other hydrocarbons.

This bid item shall also cover the cost of supply, transport, delivery to the site, placement and compaction of specified fill material required for backfilling in Area 2 from a depth of 25 feet to the ground surface. During backfilling, bracing shall be systematically removed. After backfilling is completed, sheeting may be removed, except in the locations shown in the Drawings where sheeting will be required to remain for protection of existing structures.

Also included in the bid item are costs for the documentation, transportation and disposal to a State permitted Class I or Class II-1 disposal facility of "hazardous" soil or water removed from the site by Contractor. This material is classified as "hazardous" due to the presence of jet fuel or other hydrocarbons. Copies of laboratory analyses of soil samples collected from soil borings within and surrounding Area 2 are available upon request from the Owner. Included in this bid item is the removal and disposal of paving that covers some portions of Area 2.

This bid item shall also cover the costs relating to work performed in Area 2 for: furnishing the Owner a Payment Bond to assure payment of all billings incurred by the Contractor; equipment and personnel move on and move off costs; insurance; all required permits and all required permit fees; security provisions; preparation of Excavation Plan; rainfall protection; removal of water from Area 2 excavation; and final site cleanup.

Bid Item A3 - This bid item shall cover the costs for increasing the final depth of excavation from 25 feet to 30 feet in Area 2. Included in this bid item are costs for additional bracing if this is required to protect adjacent structures and to allow safe excavation to the final directed depth of excavation. The final depth will be determined in the field by the Engineer and is not expected to exceed 30 feet.

This item shall also include the cost of documentation, transportation, and disposal to a State permitted Class I or Class II-1 disposal facility of "hazardous" soil and water removed from the site by the Contractor. This material is classified as "hazardous" due to the presence of jet fuel or other hydrocarbons.

This item shall also cover the cost of supply, transport, delivery to the site, placement and compaction of specified fill material required for backfilling this additional excavation.

Bid Item A4 - The total amount of this bid item shall be deducted from the total project cost based on Bid Items A1, A2, and A3 if the Owner agrees to extend the period of construction an additional thirty (30) calendar days.

SCHEDULE B - ALTERNATIVE BRACING AND SHORING SYSTEM PROPOSED BY CONTRACTOR

Bid Item B1 - This bid item shall cover all costs for labor, materials and equipment for design, installation and optional removal (unless otherwise specified) of sheeting, shoring and bracing of excavations to protect adjacent structures and to allow safe excavation in Area 1. Excavation in Area 1, as indicated in the Drawings, will be to a depth of 25 feet and is in soil classified as "hazardous" due to the presence of jet fuel or other hydrocarbons.

This bid item shall also cover the cost of supply, transport, delivery to the site, placement and compaction of specified fill material required for backfilling in Area 1 from a depth of 25 feet to the ground surface. During backfilling, bracing shall be systematically removed. After backfilling is completed, sheeting may be removed, except in those locations shown in the Drawings where it will be required to remain for protection of existing structures.

Also included in this bid item are costs for the documentation, transportation and disposal to a State permitted Class I or Class II-1 disposal facility of "hazardous" soil or water removed from the site by Contractor. This material is classified as "hazardous" due to the presence of jet fuel or other hydrocarbons. Copies of laboratory analyses of soil samples collected from soil borings within and surrounding Area 1 are available upon request from the Owner. Included in this bid item is the removal and disposal of paving that covers some portions of Area 1.

This bid item shall also cover the costs relating to work performed in Area 1 for: furnishing the Owner a Payment Bond to assure payment of all billings incurred by the Contractor; equipment and personnel move on and move off costs; insurance; all required permits and all required permit fees; security provisions; preparation of Excavation Plan; rainfall protection; removal of water from Area 1 excavations; and final site cleanup.

Bid Item B2 - This bid item shall cover all costs for labor, materials and equipment for design, installation and optional removal (unless otherwise specified) of sheeting shoring and bracing of excavations to protect adjacent structures and to allow safe excavation in Area 2. Excavation in Area 2, as indicated in the Drawings, shall be to a depth of 25 feet, and is in soil classified as "hazardous" due to the presence of jet fuel or other hydrocarbons.

This bid item shall also cover the cost of supply, transport, delivery to the site, placement and compaction of specified fill material required for backfilling in Area 2 from a depth of 25 feet to the ground surface. During backfilling, bracing shall be systematically removed. After backfilling is completed, sheeting may be removed, except in the locations shown in the Drawings where sheeting will be required to remain for protection of existing structures.

Also included in the bid item are costs for the documentation, transportation and disposal to a State permitted Class I or Class II-1 disposal facility of "hazardous" soil or water removed from the site by Contractor. This material is classified as "hazardous" due to the presence of jet fuel or other hydrocarbons. Copies of laboratory analyses of soil samples collected from soil borings within and surrounding Area 2 are available upon request from the Owner. Included in this bid item is the removal and disposal of paving that covers some portions of Area 2.

This bid item shall also cover the costs relating to work performed in Area 2 for: furnishing the Owner a Payment Bond to assure payment of all billings incurred by the Contractor; equipment and personnel move on and move off costs; insurance; all required permits and all required permit fees; security provisions; preparation of Excavation Plan; rainfall protection; removal of water from Area 2 excavation; and final site cleanup.

Bid Item B3 - This bid item shall cover the costs for increasing the final depth of excavation from 25 feet to 30 feet in Area 2. Included in this bid item are costs for additional bracing if this is required to protect adjacent structures and to allow safe excavation to the final directed depth of excavation. The final depth will be determined in the field by the Engineer and is not expected to exceed 30 feet.

This item shall also include the cost of documentation, transportation, and disposal to a State permitted Class I or Class II-1 disposal facility of "hazardous" soil and water removed from the site by the Contractor. This material is classified as "hazardous" due to the presence of jet fuel or other hydrocarbons.

This item shall also cover the cost of supply, transport, delivery to the site, placement and compaction of specified fill material required for backfilling this additional excavation.

Bid Item B4 - The total amount of this bid item shall be deducted from the total project cost based on Bid Items B1, B2, and B3 if the Owner agrees to extend the period of construction an additional thirty (30) calendar days.

1-38 PAYMENT

Payment for work hereunder shall be a single payment on completion of all work and acceptance of the work by the Owner. The Owner will pay the Contractor in lawful money such sums of money as may be due the Contractor including such sums withheld under Paragraph 1-31 herein. This payment will constitute the single payment to the Contractor under this Contract.

Payment will be based on the Lump Sums and Unit Prices as set forth in the Agreement.

DIVISION 2

TECHNICAL SPECIFICATIONS

SECTION 02200

EXCAVATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, materials, and resources necessary to perform the following work:

1. Design and submit for review an Excavation Plan for removing soil containing jet fuel in the areas and depths indicated in Drawing No. 1. Excavation Plan shall include a general description of the methods to be used for excavation including control of water; a Steel Interlocking Sheet Piling, Shoring and Bracing Plan (both installation and removal) for protecting building foundations; name and location of State permitted Class I or Class II-1 disposal facilities where soil containing jet fuel or water removed from excavation pits and found to contain jet fuel will be disposed; and suitability of this State permitted facility for disposal of soil or water containing hazardous material (jet fuel). Personnel health and safety requirements proposed by the Contractor shall be defined in the Excavation Plan.

The excavation plan should accommodate excavations to a depth of 25 feet in Area 1, and to a depth of 30 feet in Area 2. However, excavation of Area 2 may only extend to 25 feet with the actual depth determined by the Engineer.

2. Provide excavation, stockpiling of excavated material, and control of water according to Excavation Plan.

1.02 SUPPORT OF EXCAVATIONS

A. General:

Design, install, and at Contractor's option, unless specified otherwise, remove steel interlocking sheet piling, shoring and bracing systems for the areas noted on the Drawings to be excavated. Such systems shall be adequate to prevent any damage to any existing improvements of any kind. Each shoring and bracing system shall be designed by a civil or structural engineer registered in the State of California. Shoring and bracing systems shall be designed to accommodate excavation to a depth of 25 feet in Area 1, and 30 feet in Area 2. Sheet piling depth shall be longer than the specified excavation

depths as required by the Contractor's design of shoring and bracing systems.

B. *Steel Interlocking Sheet Piling, Shoring and Bracing Plan:*

The attention of the Contractor is directed to Sections 6700 through 6703 and 6705 of the Labor Code of the State of California. The Contractor is required to submit a specific and detailed plan showing the design of steel interlocking sheet piling, shoring, bracing, sloping or other provisions for worker protection from the hazard of caving ground during the excavation of any trench or other excavations five (5) feet or more in depth. The plan shall be submitted by the Contractor and favorably reviewed by the Owner and Engineer in advance of any excavation. The plan shall be prepared by a civil or structural engineer registered in the State of California. Nothing in this requirement shall be deemed to allow the use of shoring, sloping or protective systems less effective than those required by the California Division of Industrial Safety Construction Safety Orders. Nothing in this requirement shall be construed to impose tort liability on the Owner, Design Engineer, or any part of their representatives. This requirement in no way relieves the Contractor from the requirements of maintaining safety in all operations performed by him or his subcontractors.

C. Code Regulations:

1. The attention of the Contractor is directed to Section 832 of the Civil Code of the State of California relating to lateral and sub-adjacent supports, and wherever structures or improvements adjacent to the excavations may be damaged by such excavation, the Contractor shall give the notice referred to in said section.

2. The sides of all excavations shall be supported in a manner set forth in the rules, orders, and regulations prescribed by the Division of Industrial Safety of the State of California, Occupational Safety and Health Standards, California Administrative Code Title 8, and Federal and State OSHA.

D. Damage to Improvements:

Any damage to any existing improvements of any kind resulting from a lack of adequate shoring, bracing and sheeting shall be the responsibility of the Contractor. He shall effect necessary repairs or reconstruction at his own expense.

1.03 SAFETY PRECAUTIONS

A. General:

Provide such flagmen, barricades, flares, lights, warning signs, and safety devices as may be required for control of traffic adjacent to all areas of work.

B. Barriers:

Barriers shall be placed at each end of all excavations and such places as may be necessary along excavations to warn all pedestrians and vehicular traffic of such excavations.

C. Access to Emergency Facilities:

Maintain free access at all times to emergency facilities such as fire hydrants, fire alarms, and emergency shutoff switches.

D. Maintenance of Security:

Where the Contractor removes or damages gates and fences, he shall immediately replace such damaged fencing so that security of the work area and Owner's facilities is maintained at all times. If such repair is not practicable by the end of the working day, provide temporary fencing, patrols, or other measures as satisfactory to the Owner.

E. Additional Requirements:

Conform to the paragraph entitled "SAFETY" in Division 1 of these Specifications.

1.04 CONTROL OF WATER

A. General:

Keep all excavations free of water, and conduct all excavation and other earthwork in the dry. Excavation areas shall be covered to divert water away from the excavation areas when work is not in progress, and during periods of rainfall. Conform also to Article 3.02.

1.05 DEMOLITION

A. Test Cell No. 4:

The portion of the former concrete slab under which excavation will occur has been removed by others prior to the start of this Contract. The sump area adjacant to the east wall of Test Cell No. 4 will remain in place. This area consists of a sump extending less than five feet below a concrete slab and enclosed by corregated metal sides and roof.

1.06 SUBSURFACE CONDITIONS

A. General:

Conform to the requirements of the paragraph entitled "EXAMINATION OF SITE, DRAWINGS, POTENTIAL UTILITIES, ETC." in Division 1 of these Specifications.

B. Subsurface Investigations:

A soil report on the site was prepared by Dames and Moore dated 8 April 1985. A copy of this report will be provided by the Owner upon request. Laboratory analysis reports of site soil showing concentrations of jet fuel are also available upon request.

1.07 EXISTING UTILITIES AND STRUCTURES

A. General:

The Owner will make available to bidders all maps, diagrams, drawings, and field sketches that may be available that show the approximate locations of known existing utilities. There is no guarantee that all utilities, structures, or obstructions, active or inactive, are shown or are known to the Owner, or that the utility information made available is accurate.

B. Active Utilities:

Prior to the commencement of excavation, the Owner will indicate the approximate alignment of existing utilities believed to be active by painting marks on the pavement. Exercise care to avoid damaging utilities and other facilities that are to remain in service during and subsequent to construction. The Contractor shall conduct "potholing" of known utilities in order to accurately determine their horizontal and vertical locations. The Contractor shall be responsible for their repair if damaged. Provide proper support of all utilities and structures during excavation, including pipelines, conduits, and electrical ducts that cross through excavated areas. Take extreme care when excavating near and supporting any electrical facilities, which may or may not be concrete encased.

C. Inactive Utilities:

Inactive utilities are believed to have been removed in the areas to be excavated. When additional inactive utilities are encountered and confirmed to be abandoned, any sections interfering with construction may be removed and the open ends plugged with grout. A representative from the Owner's facilities maintenance department will be available to confirm in a timely manner that encouuntered utilities are abandoned.

D. Overhead Utilities:

Overhead electric utilities may exist in the area of work. Overhead utilities are not shown on the Drawings. Bidders shall take note of the existence and location of all overhead utilities before submission of their Bid Proposal.

E. Structures:

There are existing structures adjacent to areas to be excavated. No accurate drawings are known to exist that show piles, footings, or other underground obstructions that may exist in the area of work and that may interfere with excavation and installation of the shoring and bracing systems. The Contractor shall "pothole" for possible obstructions near structures to determine if such obstructions exist.

1.08 SUBMITTALS

A. General:

Submit the following information to the engineer for review. Do not begin work until favorable review or written acknowledgement that the submittal requirements have been met has been received.

B. Excavation Plan:

Conform to Paragraph 1.01 A. above.

C. Steel Interlocking Sheet Piling, Shoring and Bracing Plan:

Conform to Paragraph 1.02 B. above.

D. State Permitted Class I or Class II-1 Disposal Facility:

Submit name, location and suitability for disposal of contaminated soil or water containing hazardous material (jet fuel).

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:

Provide all materials necessary for performing the work.

B. Water:

Reasonably free of objectionable quantities of silt, oil, organic matter, alkali, salts, and other impurities as determined by the Engineer. The Owner will make available reasonable amounts of water for the Contractor's use at no cost to the Contractor.

PART 3 - EXECUTION

3.01 EXCAVATION SUPPORT SYSTEMS

A. Installation:

Properly install the steel interlocking sheet piling, shoring and bracing systems in accordance with the favorably reviewed Steel Interlocking Sheet Piling, Shoring and Bracing Plan.

B. Removal of Steel Interlocking Sheet Piling, Shoring and Bracing:

Conform to Section 02202, BACKFILLING AND COMPACTION.

C. Damage to Improvements:

Any damage to any existing improvements of any kind resulting from a lack of adequate shoring, bracing, and sheeting shall be the responsibility of the Contractor. He shall make necessary repairs or perform reconstruction at his own expense.

3.02 CONTROL OF WATER

A. Keep excavations free from water and perform all construction in the dry.

B. Dispose of groundwater and surface water so as to cause no injury or nuisance to public or private property, or be a menace to the public health. Make all necessary provisions for removing sediment, turbidity, and other pollutants before disposal.

C. The Contractor shall protect from damage and shall be responsible for any damage to the foundations or any other parts of the work and existing facilities caused by failure of any part of the Contractor's protective works. Remove temporary protective works after they are no longer needed for water control and excavation purposes.

D. The Contractor shall be responsible for furnishing temporary drainage facilities to convey and dispose of surface water and storm runoff falling on or passing over areas impacted by project construction activities. Prevent disposal of sediments from the soils to adjacent lands or waterways by employing methods as necessary, including settling basins, impoundments, or berms.

E. Contractor shall remove water that collects in the excavation from the site in trucks (or tank trucks) reigstered by DOHS, DOT, and other regulatory agencies for transport of hazardous materials. Water shall be disposed of by Contractor at a State permitted Class I or Class II-1 disposal facility.

3.03 EXCAVATION

A. Proceed with excavation of the areas shown on the Drawings after the steel interlocking sheet piling, shoring and bracing systems are properly installed. Excavate using equipment and methods suitable and appropriate for the purpose. Steel interlocking sheet piling location shall generally conform to the location shown on the Drawing.

Depth of sheet piling shall be as required to permit removal of the 25 foot and 30 foot depths set forth above.

Certain sheet piling areas noted on the drawings will not be withdrawn from their driven location. The Contractor, at his option, may remove sheet piles in areas not specifically requiring sheet piles to be left in place.

The steel interlocking sheet piling shall be driven in a box shape to form a cofferdam enclosure. The entire enclosure shall be supported and stiffened to assure that the existing building and foundations will be protected from damage caused by this work.

Existing building footings will be first exposed, where sheet piling is to be driven next to or within 10 feet of a building wall.

Sheet piling will be driven as close to the outside edge of footing wall as possible adjacent to Test Cell No. 4 structure and sump shown on Drawing No. 1, but no closer than 6 inches clear of structure footing. This distance may be determined by overhead interferences and may be more than 6 inches clear.

B. Dispose of excavated material in accordance with Section 02201, DISPOSAL OF EXCAVATED MATERIAL. Stockpile material sufficiently away from the edge of the excavation.

C. Perform all work in the dry.

D. After the excavation of Area 2 is completed to a depth of 25 feet, Contractor shall cooperate with the Engineer so that the Engineer may collect samples from soil at the bottom of the excavation. After obtaining required soil samples, the Engineer will indicate within one hour if further excavation is required and if so to what depth. Incremental depth of further excavation shall be in one foot increments to a maximum final depth of excavation of 30 feet.

E. After the Engineer has determined that no additional excavation is required, smooth and compact the bottom of the excavation and leave in a clean condition suitable for subsequent placement and compaction of backfill material. Leave the excavation and sheeting, shoring and bracing system in a condition that will be safe for entry by workmen, the Engineer's personnel and agents, and soil testing technicians working for the Owner's geotechnical consultants. Remove material at the bottom of the excavation so that remaining slopes are no steeper than 3 horizontal to one vertical. Compact the resulting graded, smoothed, and cleaned excavation bottom using appropriate equipment until the upper 12 inches is compacted to a minimum 90 per

cent relative compaction (95 percent for granular materials), testing in accordance with Section 02202, BACKFILL AND COMPACTION. No payment will be made to the Contractor until the work in this Paragraph is satisfactorily completed.

END OF SECTION

SECTION 02201

DISPOSAL OF EXCAVATED MATERIAL

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all necessary labor, equipment, materials, and services for the following work contained herein in this Section:

1. Transport and dispose of excavated soil material or "hazardous" water removed from the site at a Class I or Class II-1 disposal facility permitted by the State for soil or water containing jet fuel.

1.02 SUBMITTALS

Conform to Section 02200, EXCAVATION.

PART 2 - PRODUCTS

(NOT APPLICABLE)

3.01 HANDLING OF EXCAVATED MATERIAL

A. General:

Excavated material contains jet fuel, and Contractor is required to take appropriate safety precautions when handling this material. Conform to all applicable Codes and Regulations for such hazardous and inflammable materials.

B. Stockpiling:

Remove, transport, and properly dispose of soil as excavated. If, after approval by the Owner, excavated soil is to be temporarily stockpiled, completely surround the stockpile area with a prepared impervious temporary berm at least 6 inches high to prevent runoff and made of cold mix asphalt or other impervious material and cover stockpile with waterproof sheeting.

C. Transport and Disposal:

Properly remove, transport off-site, and dispose of soil containing jet fuel as required herein. Transport in strict accordance with California State Department of Health Services, Federal Department of Transportation, other applicable codes and regulations, and as appropriate for hazardous and inflammable material. Dispose of transported material at a favorably reviewed State permitted Class 1 or

Class II-1 disposal facility. The Contractor shall complete hazardous waste transport manifests which will be signed by a representative of the Owner, who is the generator of the material.

END OF SECTION

SECTION 02202

BACKFILL AND COMPACTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnishing imported Satisfactory and Suitable Backfill Material to supplement stockpiled onsite material.

B. Moisture conditioning all backfill material.

C. Placing and compacting backfill material to existing grade, including final grading.

D. Removing and transporting off-site the Steel Interlocking Sheet Piling, Shoring and Bracing Systems, where removal is permitted.

E. Final Cleanup.

F. Providing all other materials, labor, and equipment necessary to perform the required work.

1.02 QUALITY ASSURANCE AND TESTING

A. Source Quality Control:

Submit test results performed by a favorably reviewed independent testing laboratory to prove proposed materials conform to requirements for Satisfactory and Suitable material specified herein. All compaction tests shall conform to ASTM D1557 Method A or C for laboratory tests, and to ASTM D1556 for field tests. Field tests by nuclear methods conforming to ASTM D2922 may be used. The Contractor shall pay testing costs for source quality control. Field tests conducted to assure compliance with the requirements of this Specification shall be paid for by the Owner, except for the costs of retests caused by the Contractor's initial inadequate installation effort, which will be backcharged to the Contractor or deduted from his single payment.

1.03 SUBMITTALS

A. Steel Interlocking Sheet Piling, Shoring and Bracing Plan:

Refer to Section 02200, EXCAVATION.

B. Samples:

Furnish such quantities of all construction materials as may be required by the Engineer for test purposes. Cooperate with the Engineer and furnish necessary facilities for sampling and testing of

all materials and workmanship. All materials furnished and all work performed will be subject to rigid inspection, and no material shall be used in the construction work until it has been favorably reviewed by the Engineer and the Owner's geotechnical consultant.

PART 2 - PRODUCTS

2.01 BACKFILL MATERIAL

A. General:

Satisfactory and Suitable Material favorably reviewed by the Engineer or a representative of the Owner's geotechnical consultant and conforming to the requirements below.

B. Source shall be one or both of the following:

1. Imported Satisfactory and Suitable Material.

C. Requirements:

Satisfactory and Suitable Material shall be inorganic, free from debris, roots, wood, scrap material, vegetable material, rocks 4 inches or more in greatest dimension, or other refuse, and having a liquid limit less than 40 and a plasticity index less than 15. Properly moisture condition before placing and compacting.

2.02 WATER

Conform to Section 02200, EXCAVATION.

PART 3 - EXECUTION

3.01 BACKFILL AND COMPACTION

A. Receive favorable review of the excavation subgrade by the Owner's geotechnical consultant prior to starting backfilling.

B. Backfill material shall be Satisfactory and Suitable Material. Place backfill in level, uniform layers, 8-inch thick maximum as measured before compaction, or as required by the Owner's geotechnical consultant.

C. Compact to minimum 90 percent relative compaction, except that granular materials shall be compacted to minimum 95 percent relative compaction. Compact the upper 3 feet to existing grade of all backfilled excavations to minimum 95 percent relative compaction. Cooperate with field testing personnel to allow taking of tests.

D. At the time of compaction, the moisture content of all backfill materials shall be such that the specified compaction is obtained. Material which contains a moisture content from which the required compaction cannot be obtained shall not be compacted until it is brought to a moisture content that will permit proper compaction. Employ such means as may be necessary to secure a satisfactory and uniform moisture content throughout the material of each layer being compacted. After the material has been moisture conditioned, it shall be compacted by compaction equipment as needed to achieve specified compaction.

E. Compaction of backfill materials by flooding, ponding, or jetting will not be permitted.

F. When densities of materials do not meet the requirements for compaction, remove and recompact the material until the requirements are met, at no additional cost to the Owner beyond that included in the agreed-upon price. The Contractor will be backcharged by the Owner for the cost of retesting areas recompacted.

G. Take all necessary precautions to avoid overstressing walls and foundations while constructing the backfill adjacent to existing structures.

H. Testing: Field testing will be performed by the Owner's geotechnical consultant in accordance with Articles 1.02 and 1.03 above.

3.02 EXCAVATION SUPPORT SYSTEMS

A. Removal of Shoring, Bracing and Steel Interlocking Sheet Piling:

Shoring and bracing shall be sequentially removed only after backfill has been placed to the level of said shoring and bracing. Steel interlocking sheet piling shall not be removed (where permitted to be removed) until backfill has been completed to finished grade.

The methods used to remove steel interlocking sheet piling, shoring and bracing, shall prevent any damage or movement of the adjacent structure footings. Where sheet piling is permitted to be removed, the void caused by the removal of said sheet piling shall be carefully filled with sand compacted in a manner satisfactory to the Engineer.

B. Steel Interlocking Sheet Piling Left in Place:

Steel interlocking sheet piling required to be left in place shall be cut off 2 feet below finish grade.

C. Damage to Improvements:

Any damage to any existing improvements of any kind resulting from a lack of adequate shoring, bracing, and steel interlocking sheet piling, shall be the responsibility of the Contractor. He shall make necessary repairs or perform reconstruction at his own expense.

3.03 CLEANUP

A. Finish Grading:

Finish grade the backfilled area to match the existing surrounding grade. Finish grading shall be uniform and of pleasing appearance. No pavement replacement other than that damaged by this contract is required. Pavement called for to be removed shall not be replaced.

B. Final Cleanup:

Prior to final acceptance of the work, thoroughly clean the premises, remove all temporary structures built by or for the Contractor, and remove all equipment and surplus construction material and debris from the area. The entire project, before acceptance by the Owner, shall be left in a neat and clean condition. All work areas and temporary construction areas shall be returned to essentially the same conditions existing before the commencing of project construction.

3.04 PROTECTION OF WORK

The Contractor shall be responsible for the care of all work until its completion and final acceptance, and he shall, at his own expense, replace damaged or lost material and repair damaged parts of the work to the satisfaction of the Engineer.

END OF SECTION

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Kennedy/Jenks Engineers

657 Howard Street
San Francisco, California 94105
415-362-6065

12 April 1985

Mr. Christopher M. Andrews
Manager - Engineering Quality
Control & Facilities
Airwork Corporation
Millville, NJ 08332

Subject: Phase II Detailed Site Assessment Report, Pacific Airmotive Corporation, Burbank, California (K/J 4101)

Dear Mr. Andrews:

Pursuant to our Agreement dated 13 March 1985, seven soil borings were drilled during 18-21 March 1985, at the Pacific Airmotive Corporation (PAC) Burbank facility to obtain soil samples for chemical analysis and determination of soil properties. This letter report summarizes our field and laboratory analyses performed on soil samples obtained from borings and presents recommendations for excavating soil in the two areas, previously identified in our Phase I report, where jet fuel was found in the soil. A report by our geotechnical subconsultant, included as Attachment A, describes drilling and sampling procedures, and contains boring logs and results of soil property tests. Attachment B includes copies of laboratory analysis reports on soil samples analyzed to confirm results of organic vapor analyses conducted in the field.

PHASE II - DETAILED SITE ASSESSMENT

During this detailed site assessment, seven soil borings were completed to estimate the horizontal and vertical extent of jet fuel in areas previously found to contain jet fuel in the soil based on shallow trenches (see Kennedy/Jenks Engineers Phase I Report of 11 December 1984). Four vertical borings were completed near location G4, and three slant borings (at an angle of approximately 20° from vertical) were completed adjacent to Test Cell No. 4 as shown on Figure 1. See Attachment A for details of the boring method.

DAVID A. BACHAROWSKI

APR 17 1985

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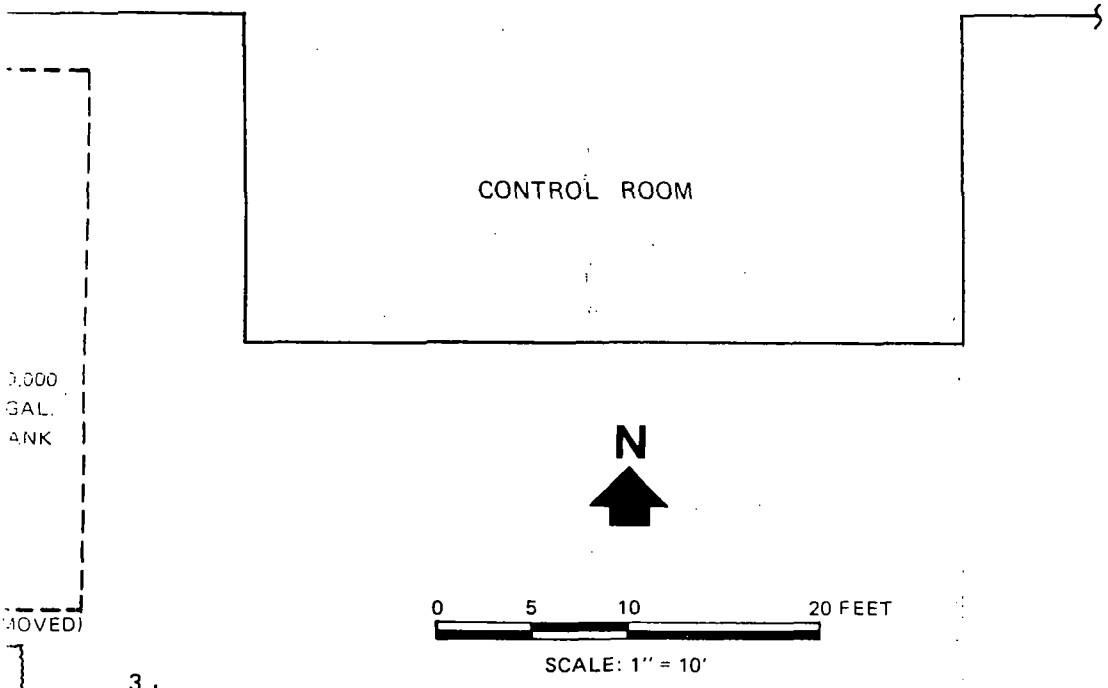

NOTES:
1. PUMP STATION AND POWER STATION SLABS HAVE BEEN REMOVED BY PACIFIC AIRMOTIVE CORPORATION. SUMP REMAINS IN PLACE.
2. SLANT BORINGS DRILLED AT 20° FROM VERTICAL.

Kennedy/Jenks Engineers

Pacific Airmotive Corporation
Burbank, California

Site Plan Locating Vertical and Slant Borings

K/J 4101
April 1985

Figure 1

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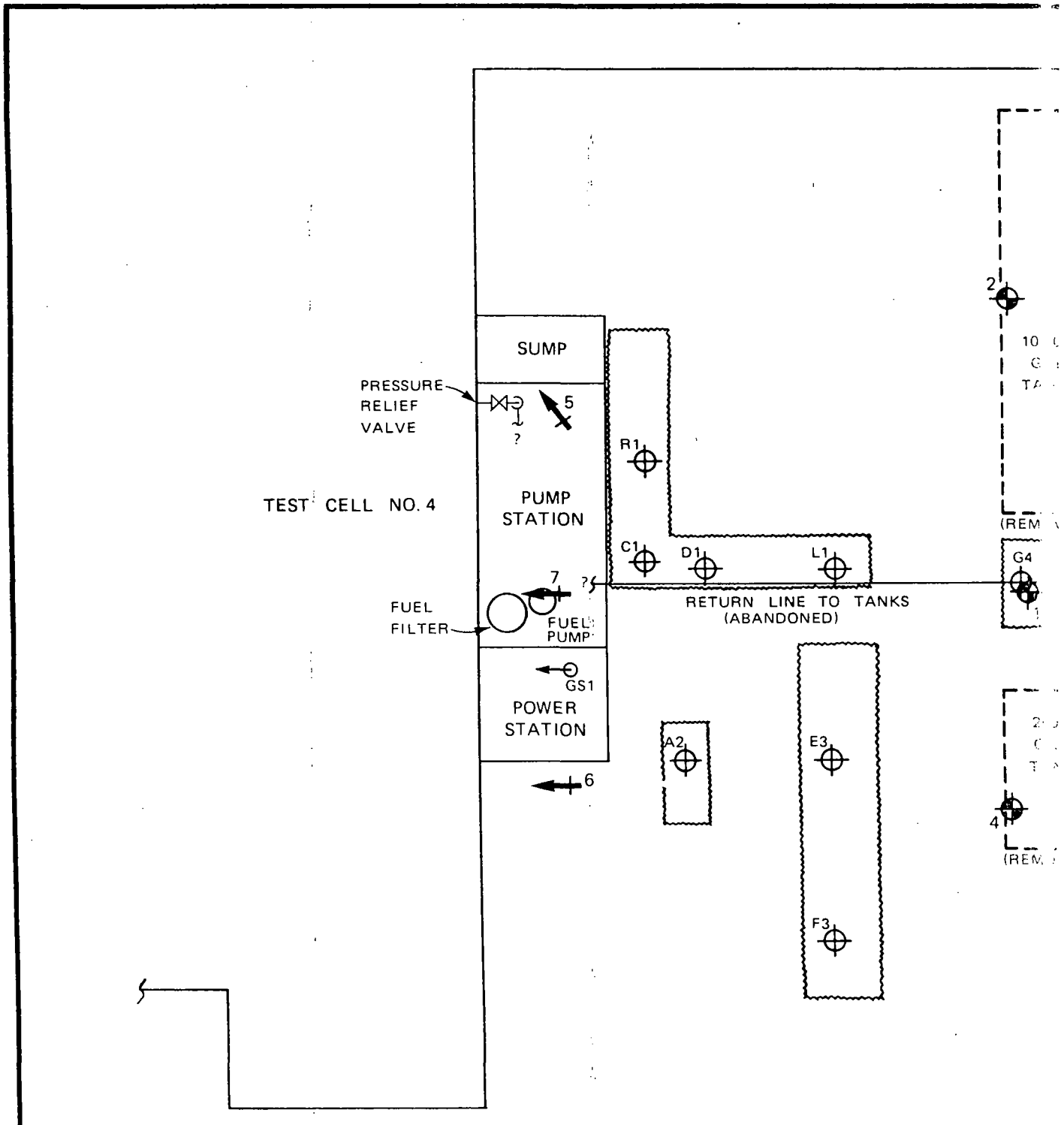
SUMP
PRESSURE
RELIEF
VALVE
5
?
TEST CELL NO. 4
PUMP
STATION
R1
C1
D1
L1
7
?
FUEL
FILTER
FUEL
PUMP
GS1
POWER
STATION
6
A2
E3
F3
2
10
G4
RETURN LINE TO TANKS
(ABANDONED)
4
(REM

Field Procedures

The vertical boring locations were selected to define the limits of jet fuel migration in the soil surrounding the end of a buried, abandoned pipeline found during Phase I investigations. The end of this pipeline is near sampling site G4 shown on Figure 1. The first two vertical borings were drilled to a depth of approximately 40 feet. Boring 3 was terminated at a depth of 36 feet after organic vapor analysis of soil samples showed no significant vapor concentration for two consecutive samples (ten feet) below samples where jet fuel was detected by organic vapor analysis. Boring 4 was terminated at twenty-five feet because no fuel was detected and jet fuel, if present, should have been found within this depth, based on the results of Borings 1 and 3.

Mr. David Bacharowski of the Los Angeles Regional Water Quality Board (RWQCB) observed drilling of Boring 1 and Boring 6. Telephone contact was maintained during drilling to report organic vapor analysis and field decisions regarding boring termination depths.

The slant borings were positioned in areas that formerly housed fuel pumping and power stations, which were both removed prior to Phase II investigations. Boring 5 was placed in a northwesterly direction so that soil samples could be obtained from underneath the cooling water sump that remains in place, and from underneath Test Cell No. 4. The sump is required for continued operation at Test Cell No. 4 and was not removed for this reason. The location of Boring 5 was constrained by maneuvering requirements of the drilling rig, and the maximum drilling angle that was attainable given the ability of the drop hammer to drive the soil sampler in site soils. Drilling was terminated at an approximate depth of 38 feet and a horizontal location about two feet to the west of the building line beneath Test Cell No. 4.

Boring 6, Boring 7, and Grab Sample (GS) 1 were drilled perpendicular to the building line of Test Cell No. 4 so that samples could be collected from underneath the building. These angle borings also provide a basis for determining the depth of jet fuel migration under the former location of the fuel pumping and power stations.

Soil samples were collected from borings at approximately five-foot intervals using a split spoon drive sampler containing stainless steel and brass sample tubes. One of the upper stainless steel sample tubes, collected for subsequent laboratory analyses, was sealed following the procedures described in Attachment A. For each discrete sampling depth, soil samples from the two, lower one-inch brass tubes were screened in the field with an organic vapor analyzer (Foxboro Model OVA-128) to indicate the presence of jet fuel. The screening was performed by placing the samples in glass jars and analyzing headspace for the presence of organic vapors. If the organic vapor analyzer indicated the presence of organic vapors, the boring was continued until two consecutive measurements failed to indicate organic vapors above background levels. In a boring where soil samples had no vapors detectable by the organic vapor analyzer, the boring was completed to a depth corresponding to the maximum depth of fuel found in nearby drilling locations.

Borings were backfilled with a sand/bentonite mix as described in Attachment A.

Laboratory Analysis

Soil samples selected to confirm organic vapor field measurements were analyzed by a gas chromotography (GC) scan with a flame ionization detector (FID) using jet fuel samples from the PAC fuel supply system as a standard. Hydrocarbon detection limits of 1 ppm (mg/kg) were achievable using this method.

Laboratory analysis reports are presented in Attachment B. A comparison of field vapor analyses and subsequent laboratory analyses is presented in the following section.

Phase II Results

The results of the organic vapor field survey and laboratory analyses are summarized in Table 1. Complete laboratory reports are submitted in Attachment B. As observed during Phase I soil excavations, Table 1 shows a good correlation between the field soil vapor survey using the OVA-128 and quantitative laboratory analysis of soil samples for jet fuel. This agreement between vapor analysis and laboratory analysis supports the continued use of the organic vapor survey technique for defining the

extent of jet fuel migration at this site during proposed site remediation.

Vertical borings in the vicinity of location G4 and Boring 1 indicate that jet fuel appears to be localized in this area. An abandoned, buried pipeline that at one time served as a fuel supply return line from the pump station and was found to terminate near location G-4 is the probable source of jet fuel in this area. Phase I and Phase II field measurements and confirmatory laboratory analyses indicate that jet fuel in soil is found in a zone about 20 feet thick below the 5-foot depth at which the pipeline was found.

Laboratory analysis of soil samples confirmed the presence of jet fuel underneath the pump and power stations, with the highest concentrations found at slant Boring 7. A comparison of the samples from a depth of approximately 5.5 feet at slant Borings 5, 6 and 7, and Grab Sample 1 indicate decreasing fuel concentrations to the south of Boring 7. Similarly, soil samples from Boring 5 beneath the sump show a decrease in concentrations to the north of Boring 7.

Based on available slant boring results, twenty-five to thirty feet appears to be the extent of vertical penetration of jet fuel near the eastern wall of Test Cell No. 4; however, soil samples at these depths are under the building. A comparison of boring logs in this area shows the underlying soil formation to be relatively homogeneous. Thus, the vertical extent of jet fuel migration directly under the former pump station is also likely to be twenty-five to thirty feet.

SPILL CLEANUP - PROPOSED WORK PLAN

Cleanup Objectives

To minimize the further spread of jet fuel, PAC is proceeding with plans to excavate soil in areas where elevated jet fuel concentrations were found, and where excavation will lead to cost-effective site remediation.

The are no regulatory action levels for soil containing jet fuel and few details are known about the specific composition of the jet fuel; although, it is thought to have a composition similar

to that of kerosene. Refinery analysis of the jet fuel delivered to Pacific Airmotive Corporation was found to have a boiling point range of 162° to 278°C; the boiling point range of kerosene is 175° to 325°. Kerosene is a mixture of petroleum hydrocarbons, with mainly straight chain aliphatic molecules having 10 to 16 carbon atoms. [The Merck Index, Ninth Edition, Martha Windholz, ed. Merck & Co., Inc., Rahway, NJ, 1976.]

Although no State action levels have been set for kerosene or its constituents, the EPA has arrived at ambient goals which may be helpful in evaluating cleanup objectives of the planned remediation. The EPA's estimated permissible concentrations in soil based on human health effects for some of the chemicals potentially present in kerosene are given in Table 2 [Multimedia Environmental Goals for Environmental Assessment, Volume I (Supplement A) EPA 600/7-80-041 March 1980].

Cost-effective excavation is proposed to remove the major soil areas found to contain elevated jet fuel concentrations. Considering the depth to groundwater at the site (over 100 feet), the limited vertical migration of jet fuel observed in the Phase II borings, the likely biodegradability of the fuel components, and the physical constraints to excavation, some residual fuel concentrations in site soils should be acceptable. Furthermore, any residual jet fuel concentrations in soil below structures or yard paving will be protected from leaching by resurfacing excavated areas with new paving. These factors in conjunction with the EPA guidance presented in Table 2 were the basis for planned excavation, as discussed below.

Planned Soil Excavation

The extent of planned excavation is shown on Figure 2. Area 1, encompassing the end of the abandoned, buried pipeline, will be excavated to a depth of 25 feet. Area 2, the former location of the fuel pump and power station, will be excavated to an initial depth of 25 feet. The final depth of excavation in Area 2 will not extend below 30 feet. The actual depth in Area 2 will be determined in the field based on organic vapor analysis of soil samples collected from the bottom of the excavation. It should be noted that excavation will be as close to structures as feasible given constraints on excavation shoring and bracing system installation.

The planned excavation in Area 2 will remove the majority of the soil containing jet fuel estimated to be in this area. Samples below 15 feet (linear borehole distance of 16 feet) at slant Boring 7, the apparent area of highest jet fuel concentration, represent samples from beneath Test Cell No. 4. Concentrations found at these depths are below the suggested EPA ambient level goals shown in Table 2. Samples below seven feet (linear borehole distance of 7.5 feet) at slant Boring 5, represent soil underneath the sump and are also well below suggested EPA ambient level goals.

The limits of soil excavation in Area 1 are based on the apparently localized source of jet fuel that was found near G4 (Figure 1). Given that the soil formation is relatively homogeneous and that jet fuel did not follow some preferential pathway, Boring 3 appears to be near the radial limit of jet fuel migration. Borings 2 and 4 at greater radial distance did not detect fuel oil.

The eastern edge of the excavation planned for Area 1 is within one to two feet of buried utility lines known to exist in this area; the exact location of these lines are unknown. Although the concentration of jet fuel found in one soil sample in Boring 3 at the 21-foot depth exceeds the EPA ambient level goals, soil samples from five-foot intervals above and below this sample show concentrations far below the EPA ambient level goals. Given the significant increase in project costs required for utility relocation and expanded excavation to extend the eastern boundary of Area 1, the planned eastern of boundary of Area 1 was limited to within one foot of the buried utility lines. Repaving the surface in this area will minimize further migration of any residual jet fuel left in the soil by preventing leaching by percolating water or surface drainage.

Soil Sample Organic Vapor Survey During Excavation

Soil samples in Area 2 will be surveyed in the field by Kennedy/Jenks Engineers' personnel using an organic vapor analyzer to indicate the extent of jet fuel between the depths of 25 to 30 feet. This will be performed by placing samples collected from the bottom of the excavation in glass jars and analyzing headspace for the presence of organic vapors. Samples will be collected for organic vapor surveys, as needed, to aid in identifying any jet fuel migration in Area 2 below 25 feet.

Kennedy/Jenks Engineers

Preparation of Cleanup Report

Upon completion of excavation and placement of clean backfill, Kennedy/Jenks Engineers will prepare a letter report summarizing field procedures, obeservations, and the results of the field organic vapor measurements. The report will include a site map showing the location of excavated soil and results of organic vapor field surveys.

SCHEDULE

According to PAC, requests for bids from contractors for soil excavation will be reviewed during the week of 22 April 1984. We suggest that the results of the Phase II Detailed Site Assessment and Spill Cleanup Plan be submitted to the Regional Water Quality Control Board staff and reviewed with them as soon as possible.

If you have any questions, please contact us.

Very truly yours,

KENNEDY/JENKS ENGINEERS, INC.

Noel Lerner

Noel M. Lerner
Project Engineer

Thomas W. Kalinowski

Thomas W. Kalinowski, Sc.D.
Project Manager

NML/TWK:ck

Attachments

Attachment to Kennedy/Jenks Engineers
letter report to Pacific Airmotive Corporation
dated 12 April 1985

ATTACHMENT A

SUBSURFACE INVESTIGATION

PACIFIC AIRMOTIVE CORPORATION, INC.
BURBANK, CALIFORNIA

Dames & Moore

April 1985

Dames & Moore
812 Anacapa Street, Suite A
Santa Barbara, CA 93101
(805) 963-9676 / 963-5976

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April 5, 1985

Kennedy/Jenks Engineers
657 Howard Street
San Francisco, California 94105

Attention: Noel Lerner

Gentlemen:

Report
Subsurface Investigation
Pacific Airmotive Corporation, Inc.
Burbank, California
For Kennedy/Jenks Engineers

1.0 INTRODUCTION

This report presents a summary of our subsurface investigation at the Pacific Airmotive facility in Burbank, California. The site is a parking lot between test cells at an engine testing facility. In September of 1984 a jet fuel leak was discovered. Preliminary trenching by Kennedy/Jenks Engineers confirmed the presence of jet fuel in the soil to a depth of approximately 10 feet. On the basis of these findings, Kennedy/Jenks Engineers requested Dames & Moore to further delineate the extent of jet fuel in the subsurface beneath the site.

2.0 PURPOSE AND SCOPE

The purpose of the investigation is to: (1) evaluate the vertical extent of jet fuel in the soil below Test Cell No. 4 (Figure 1); (2) to assess the vertical and lateral extent of jet fuel in the parking lot to the east of Test

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Cell No. 4 in areas designated by Kennedy/Jenks Engineers; and (3) to characterize the subsurface materials encountered. In order to accomplish these three objectives we have completed a scope of work consisting of:

- Drilling a total of four vertical and three angle borings;
- Collection of undisturbed soil samples at five foot intervals for chemical analyses; and
- Laboratory analysis of moisture content, dry density and shear strength of selected soil samples.

These tasks are described in more detail below.

3.0 INVESTIGATIVE METHODS

3.1 HEALTH AND SAFETY PLAN

A Health and Safety Plan was developed prior to initiation of site activities. The purpose of the plan was to assign responsibilities, establish personnel protection protocol and safety procedures, and provide for contigencies in the event that unanticipated hazards arise during the course of field operations. A portable photoionization detector (hnu) as well as a explosimeter was used to monitor the concentration of organic vapors in the hollow stem of the auger and the breathing zone during the drilling operation.

3.2 DRILLING METHODOLOGY

All borings were advanced under the technical supervision of a Dames & Moore geologist utilizing hollow stem auger drilling equipment. A total of four vertical (Borings 1-4) and three angle (Borings 5-7) were drilled to total depths of between 26.5 to 41.5 feet below ground surface at the locations shown on Figure 1. Following completion, each boring was backfilled with a dry sand/bentonite mixture through the hollow stem of the auger. This mixture was wetted to seal the boring as the auger was removed from the hole. Drill cuttings from each boring were either disposed of in a dumpster supplied by

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Pacific Airmotive Corporation or on the site, depending upon the presence of jet fuel. In general, cuttings containing jet fuel were disposed of in the dumpster. Cuttings which did not contain jet fuel above background levels as determined by Kennedy/Jenks personnel using an organic vapor analyzer (OVA) were defined as "clean." These cuttings were disposed of onsite under the direction of the Kennedy/Jenks engineer and with the concurrence of Regional Water Quality Control Board personnel. Termination depths of each boring were specified by the Kennedy/Jenks engineer based upon the vertical extent of contamination in the soil.

A Dames & Moore geologist prepared a log of the materials encountered during drilling. The logs of the borings are presented in Supplement 2 to this report.

3.2 SAMPLING METHODOLOGY

Undisturbed soil samples were collected at five-foot intervals, beginning at ground surface, using a Dames & Moore U-type sampler fitted with stainless steel sleeves. The sampler was washed in a trisodium phosphate solution and rinsed with distilled water between each sample. Samples were retained in the sleeves, covered with teflon sheeting inside a plastic end cap and sealed with electrical tape. Each sample was split, the "A" series for chemical analyses and the "B" series for physical laboratory testing. The presence of jet fuel was identified via field screening of soil samples with an Century Systems Organic Vapor Analyzer which was operated by the Kennedy/Jenks engineer. Appropriately labeled samples for laboratory analysis were stored and shipped in coolers refrigerated with blue ice. Chain-of-custody records were completed onsite and shipped with the samples via overnight courier to the Laboratory Division of Kennedy/Jenks Engineers within 48 hours of sample collection.

Prior to drilling and sampling each boring, all of the downhole equipment was steam cleaned with pressurized water. Steam cleaning was conducted over an onsite sump in order to contain soil which might contain jet fuel onsite.

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3.4 ANALYTICAL TESTING PROGRAM

Selected samples have been analyzed for chemical constituents by the Laboratory Division of Kennedy/Jenks Engineers. Dames & Moore analyzed selected samples for moisture content, dry density, and performed direct shear tests. This data as well as recommendations for shoring design for a planned excavation are contained in Supplement 1 to this report.

4.0 INVESTIGATIVE RESULTS

A total of four vertical and three angle borings were drilled at the locations shown on Figure 1 for the purpose of evaluating the vertical and lateral extent of jet fuel in the subsurface soils. Undisturbed soil samples were collected at five-foot sample intervals for the purpose of both chemical and physical testing. Lithologic logs of the soils encountered are presented as Supplement 2 to this report. In general, the soils encountered consisted of silty to slightly silty poorly graded sand and fine gravel in the upper 10 to 15 feet. Below this unit to depths of about 40 feet, the soils consist of relatively cleaner sand and gravelly sand. A summary of the boring types (vertical or angle), the presence of jet fuel, total linear depth of each boring, and disposal of the cuttings is given in Table 1.

o O o

Very truly yours,
DAMES & MOORE

Thomas A. Vinckier RHR

Thomas A. Vinckier
Associate

Robert E. Troutman

Robert E. Troutman
Project Geologist

TAV/RET/rlt

TABLE 1

SUMMARY OF JET FUEL OCCURRENCE IN SOIL

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Boring No.	Boring Type	Jet Fuel Contamination Detected	Total Depth (linear ft.)	Cutting Disposal
1	Vertical	Yes	41.5	Dumpster
2	Vertical	No	41.5	Onsite
3	Vertical	Yes	36.5	Dumpster
4	Vertical	No	26.5	Onsite
5	Angle	Yes	41.5	Dumpster
6	Angle	No	26.5	Onsite
7	Angle	Yes	36.5	Dumpster

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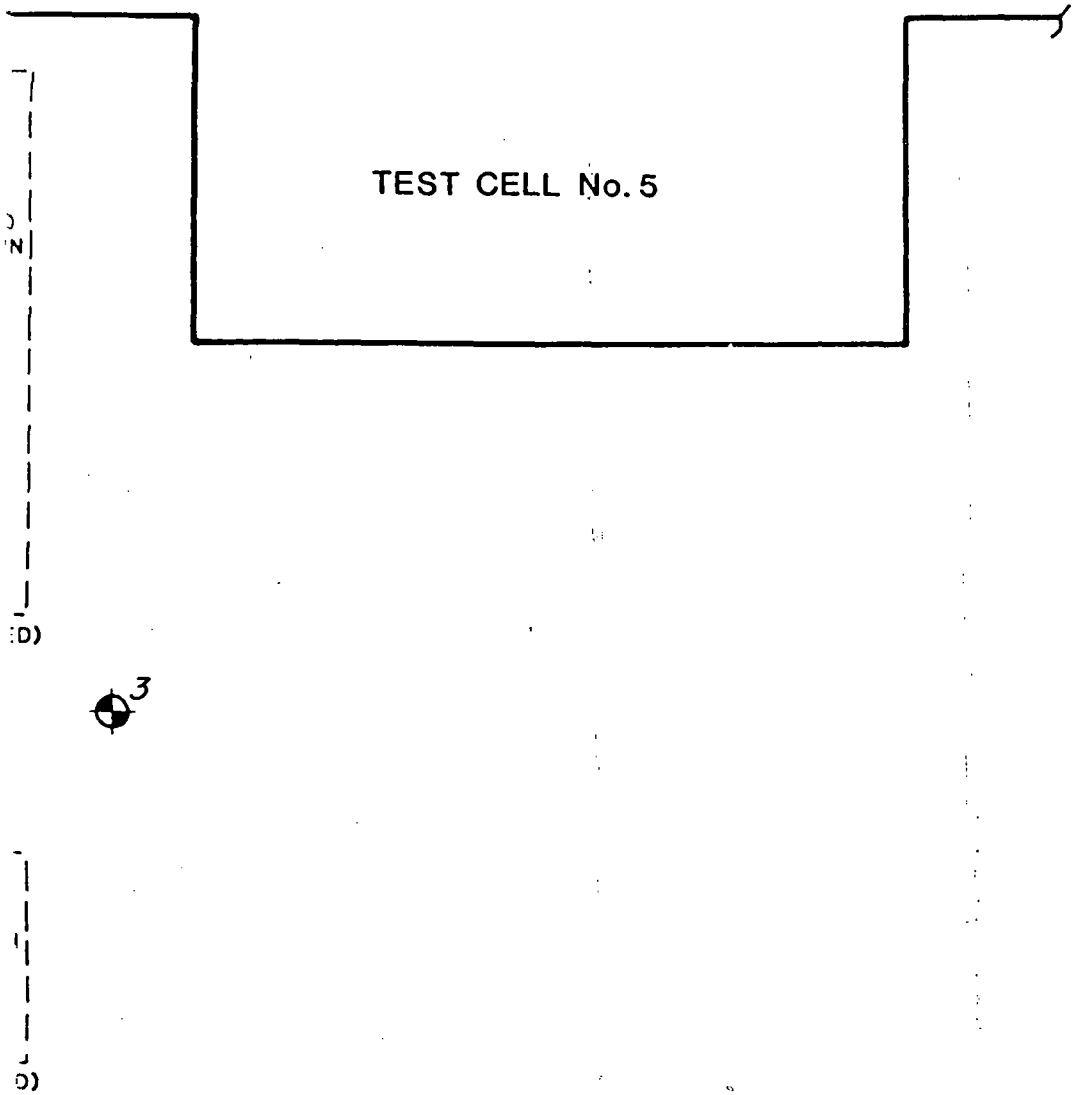


LEGEND

1 VERTICAL BORING

6 ANGLE BORING (20° ANGLE TO VERTICAL)

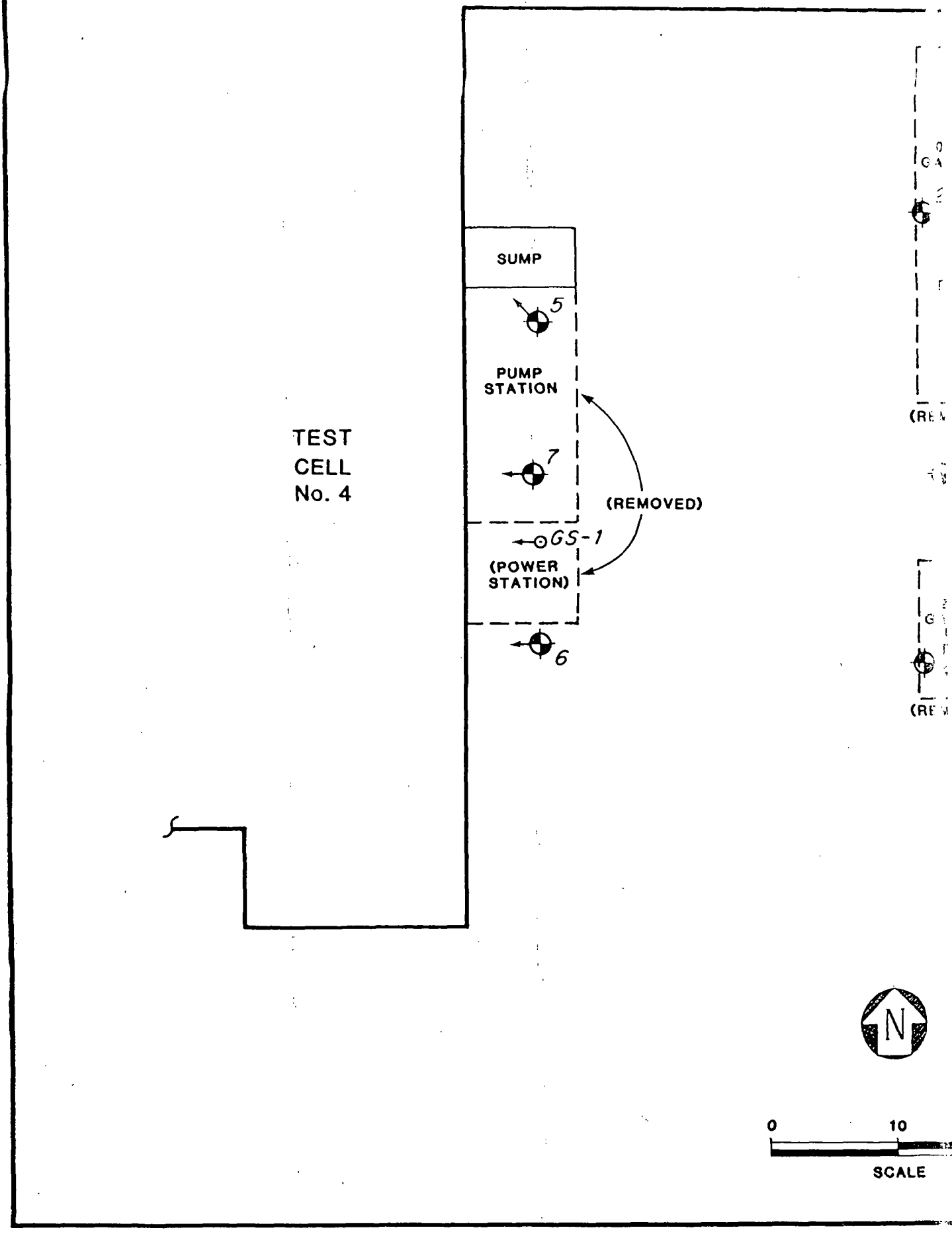
GS-1 GRAB SAMPLE (COLLECTED AT 5 FOOT DEPTH IN ANGLE BORING AT 20° TO VERTICAL)

20 FEET

FIGURE 1

SITE MAP SHOWING APPROXIMATE BORING LOCATIONS

Dames & Moore


SUMP
5
PUMP
STATION
7
TEST
CELL
No. 4
(REMOVED)
GS-1
(POWER
STATION)
6
N
0
10
SCALE

April 8, 1985

Kennedy/Jenks Engineers
657 Howard Street
San Francisco, California 94105

Attention: Mr. Noel Lerner

Gentlemen:

Supplement No. 1
Report
Subsurface Investigation
Burbank, California
For Pacific Airmotive Corporation

INTRODUCTION

The purpose of this supplement is to provide geotechnical design parameters and consultation for proposed excavations at the subject site. It is our understanding that two excavations on the order of 25 to 30 feet deep will be made, and will be supported by a shoring system with internal bracing. We understand that some of the buildings are located at the edge of the proposed excavation. Other buildings are located within 5 feet of the excavation. This report is supplemental to the draft report submitted on March 29, 1985, which contains specific information regarding the site conditions.

The scope of this report includes:

1. Examination of undisturbed samples obtained during the field investigation and review of the boring logs.

2. Laboratory tests on representative samples to evaluate moisture content, dry density and strength properties.

3. Engineering analyses.

4. Preparation of this supplement.

TEST RESULTS

Moisture-density and consolidated, undrained direct shear tests were performed on representative samples of the site soils. The samples used for the direct shear tests were saturated prior to initiation of the tests. The results of the moisture-density tests are shown on the boring logs in Supplement 2. The results of the direct shear tests are as follows:

BORING/ SAMPLE	DEPTH (feet)	NORMAL PRESSURE (psf)	SHEAR STRENGTH (psf)
1/5B	35	2,000	1,500
		4,000	3,500
3/1B	5	1,000	770
		2,000	1,370
4/2B	10	1,100	790
		2,200	1,700
5/1B	5	1,000	720
		1,500	960

DISCUSSION AND RECOMMENDATIONS

The subsurface conditions at the site consist of sands and silty sands that contain a significant proportion of gravel. The sands are relatively clean, i.e., little or no material passing the No. 200 sieve that would act as a binder. The dry densities for both soil types range from about 100 to 115 pounds per cubic foot (pcf), with the more gravelly soils having dry densities towards the high end of that range. The soils are relatively dry with moisture contents between 5 and 10 percent.

For design of the excavation support system, lateral earth pressures may be calculated using a rectangular pressure distribution of a minimum of 20H pounds per square foot, where H is the height of the wall in feet. In addition to the lateral soil pressures, the shoring system must be designed to resist the surcharge pressures from the foundation systems of adjacent buildings. The surcharge pressure should be taken as 0.45 times the foundation pressures. This pressure should be applied uniformly over the full height of the shoring system. Other surcharge loads should be evaluated and applied in the same manner. Loads within a 45-degree wedge from the base of the excavation to the ground surface will induce surcharge pressures onto the shoring system.

Passive resistance may be developed against the portion of the soldier pile embedded below the bottom of the excavation. Passive resistance may be evaluated using an equivalent fluid weighing 220 pcf. This value includes a calculated factor of safety of 1.5.

Either driven braced sheetpiles, or a soldier pile and lagging system would be appropriate to support the excavation.

It is our understanding that driven sheetpiles are anticipated at this time, however, recommendations for a soldier pile and lagging system are included should the contractor decide on that method.

We would expect that caving could be a problem during the excavation and lagging process. Some indication of this might become evident during drilling of the soldier piles. If the soldier pile borings tend to cave, then we recommend closing the spacing of the soldier piles to about 4 feet on center. Drilling several 2-foot diameter bucket auger borings along the shoring alignment prior to shoring design to evaluate this condition may be warranted. A geotechnical engineer should be present to observe the conditions encountered.

A braced sheetpile system should be satisfactory for support of the excavation. However, vibrations could be induced by sheetpile driving at distances of up to several hundred feet. The sensitivity of equipment located within several hundred feet of the proposed sheetpiles should be evaluated. In addition, if any masonry buildings exist within this distance, the mortar joints should be examined closely for cracks that may open further as a result of induced vibrations.

The following recommendations apply for both the sheetpile or soldier pile and lagging systems. The locations of existing foundations will need to be identified in the field prior to excavation owing to the near proximity of adjacent structures. We recommend that a survey of the existing buildings adjacent to the proposed excavation be conducted prior to excavation. This survey should consist of a walk-through to document the physical condition of the buildings in

writing and with photographs. The exterior walls of the buildings adjacent to the excavation should be surveyed to document deviations from vertical. Survey monuments should be installed at the base of these exterior walls. As excavation proceeds, the buildings and monuments should be surveyed at least on a weekly basis. The surveys should be documented in writing and with photographs. Particular attention should be given to signs of distress such as crack formation and binding of windows and doors. If any movements are detected, excavation should be halted and the geotechnical engineer consulted.

-oOo-

It has been a pleasure to assist you with this consultation. Please contact the undersigned should you have any questions regarding this supplement.

Very truly yours,

DAMES & MOORE

Robert D. Shanman /RAR

Robert D. Shanman
Senior Engineer

RDS:RAR:aec

SUPPLEMENT 2
SUBSURFACE INVESTIGATION
PACIFIC AIRMOTIVE CORPORATION, INC.
BURBANK, CALIFORNIA
FOR KENNEDY/JENKS ENGINEERS

DAMES & MOORE JOB NO. 14301-001-01
SANTA BARBARA, CALIFORNIA

BORING 1

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DEPTH FEET	ANALYTICAL DATA: LABORATORY MOISTURE (% DRY WEIGHT)	ANALYTICAL DATA: LABORATORY DENSITY (lbs/ft³)	SAMPLE DATA: BLOWS PER FOOT	SAMPLE DATA: SAMPLE DEPTH	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: SAMPLE TYPE	SOIL TYPE: USCS	SOIL TYPE: SYMBOLS	DESCRIPTION
5							SP (FILL)		
10			39	11		□			LIGHT BROWN COARSE SAND (FILL) (SAMPLE ATTEMPTED; NO RECOVERY)
15	2.6	97.9	55	16	1	■	SP		AS ABOVE LIGHT BROWN MEDIUM COARSE SAND, TRACE GRAVEL TO 3 INCHES (NATURAL SOIL), ODOR
20	2.5	109.0	82	21	2	■			AS ABOVE, STRONG ODOR
25	2.0	96.5	73	26	3	■			BROWN VERY FINE TO FINE SAND, TRACE SILT, SLIGHTLY MOIST, ODOR
30	12.3	94.2	43	31	4	■	SP/SM		BROWN MEDIUM TO COARSE SAND, TRACE SILT AND GRAVEL TO 3 INCHES DIAMETER; SLIGHTLY MOIST, LOOSE, ODOR
35			53	36	5	■			
40	3.5	106.2	43	41	6	■			AS ABOVE WITH DECREASE IN GRAVEL ABUNDANCE AND SIZE (LESS THAN 1.5 INCHES DIAMETER) NO ODOR
45									BORING TERMINATED AT 41.5 FEET, 0907 HOURS, MARCH 19, 1985

LOG OF BORING

Dames & Moore

BORING 2

1050

DEPTH FEET	MOISTURE (% DRY WEIGHT)	DENSITY (lbs/ft³)	BLOWS PER FOOT	SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE TYPE	USCS	SYMBOLS	DESCRIPTION
									ASPHALTIC CONCRETE
5							SP (FILL)		
			75	6	1	■			LIGHT BROWN FINE TO MEDIUM SAND, TRACE SILT NO ODOR
10	9.2	104.7	53	11	2	■	SP		LIGHT TO DARK BROWN FINE TO MEDIUM SAND, FINE GRAVEL TO 1/4 INCH DIAMETER, SLIGHTLY MOIST, LOOSE NO ODOR
15	6.1	106.2	50-6"	16	3	■			AS ABOVE
20	8.1	96.7	90	21	4	■			GRADING TO MEDIUM TO COARSE SAND WITH GRAVEL AS ABOVE, NO ODOR
25	11.3	90.5	73	26	5	■	SM		LIGHT TO DARK BROWN SILTY VERY FINE TO FINE SAND, TRACE FINE GRAVEL TO 1/4 INCH DIAMETER, SLIGHTLY MOIST, LOOSE NO ODOR
30	13.9	91.3	41	31	6	■			*GRADING FINER AND WITHOUT GRAVEL*
35			50-4"	36	7	■	SP		LIGHT GRAY MEDIUM TO COARSE SAND, TRACE GRAVEL TO 3 INCH *DIAMETER* NO ODOR
40			50-5"	41	8	■			GRADING COARSER WITH 10% GRAVEL, NO ODOR
45									BORING TERMINATED AT 41 FEET, 1310 HOURS, MARCH 19, 1985

ANALYTICAL DATA — LABORATORY / FIELD

SAMPLE DATA

SOIL TYPE

LOG OF BORING

Dames & Moore

BORING 3

1050

DEPTH FEET	ANALYTICAL DATA: LABORATORY MOISTURE (% DRY WEIGHT)	LABORATORY DENSITY (lbs/ft³)	FIELD		SAMPLE DATA: BLOWS PER FOOT	SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE TYPE	SOIL TYPE: USCS	SYMBOLS	DESCRIPTION
5					11	6	1	■	SM		LIGHT BROWN SLIGHTLY SILTY FINE TO MEDIUM SAND, SLIGHTLY MOIST, LOOSE, NO ODOR
10	2.4	104.6			33	11	2	■	SP		LIGHT BROWNISH GRAY FINE TO MEDIUM SAND, TRACE GRAVEL TO 2 INCH DIAMETER, ODOR
15	3.4	104.0			77	16	3	■	SW		LIGHT BROWNISH GRAY GRAVELLY MEDIUM COARSE SAND GRAVEL TO 3 INCH DIAMETER, MOSTLY LESS THAN 1 INCH DIAMETER, ODOR
20	1.6	111.6			67	21	4	■			AS ABOVE
					69	23	5	■			AS ABOVE, ODOR
25					65	26	6	■			ODOR NOT AS STRONG
30	7.1	94.2			32	31	7	■	SM		BROWN SLIGHTLY SILTY VERY FINE TO FINE SAND, NO ODOR
35	3.3	104.1			58	36	8	■	SP		LIGHT BROWN FINE SAND, TRACE SILT AND FINE GRAVEL NO ODOR
40											BORING TERMINATED AT 36.5 FEET, 0902 HOURS, MARCH 20, 1985

LOG OF BORING

Dames & Moore

BORING 4

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DEPTH FEET	ANALYTICAL DATA: LABORATORY MOISTURE (% DRY WEIGHT)	ANALYTICAL DATA: LABORATORY DENSITY (lbs/ft³)	ANALYTICAL DATA: FIELD	SAMPLE DATA: BLOWS PER FOOT	SAMPLE DATA: SAMPLE DEPTH	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: SAMPLE TYPE	SOIL TYPE: USCS	SOIL TYPE: SYMBOLS	DESCRIPTION
										ASPHALTIC CONCRETE
5	9.6	116.0		79	6	1	■	SM (FILL)		DARK BROWN SILTY FINE TO MEDIUM SAND, TRACE SILT AND FINE GRAVEL TO 1/2 INCH DIAMETER, TRACE GRAVEL TO 3 INCH DIAMETER NO ODOR
10				14	11	2	■			AS ABOVE
15				74	16	3	■	SP		LIGHT GRAYISH BROWN MEDIUM TO COARSE SAND, TRACE GRAVEL TO 3 INCH DIAMETER, NO ODOR
20	2.2	110.3		60	21	4	■			AS ABOVE, NO ODOR
25				83	26	5	■			AS ABOVE, NO ODOR
30										BORING TERMINATED AT 26.5 FEET, 1130 HOURS, MARCH 20, 1985

LOG OF BORING

BORING 5

1050

NOTE: BORING DRILLED AT 20° ANGLE TO VERTICAL IN N32°W DIRECTION; TOTAL LATERAL OFFSET= 15.3 FEET.

DEPTH VERTICAL	DEPTH LINEAR	ANALYTICAL DATA LABORATORY MOISTURE (% DRY WEIGHT)	ANALYTICAL DATA LABORATORY DENSITY (lbs/ft³)	ANALYTICAL DATA FIELD	SAMPLE DATA BLOWS PER FOOT	SAMPLE DATA SAMPLE DEPTH	SAMPLE DATA SAMPLE NUMBER	SAMPLE DATA SAMPLE TYPE	SOIL TYPE USCS	SOIL TYPE SYMBOLS	DESCRIPTION
	5					5	1	■	SM		DARK GRAY SLIGHTLY SILTY VERY FINE TO FINE SAND ODOR
10	10	4.7	108.4			10	2	■	SP		LIGHT GRAY SLIGHTLY GRAVELLY MEDIUM TO COARSE SAND, GRAVEL MAINLY LESS THAN 1 INCH DIAMETER, TRACE GRAVEL TO 3 INCH DIAMETER, ODOR
15	15					15	3	■			AS ABOVE, ODOR
20	20	13.4	110.6			20	4	■			AS ABOVE, SLIGHT ODOR
25	25	4.7	102.2			25	5	■			
30	30	5.4	100.1			30	6	■	SW		LIGHT GRAYISH BROWN FINE TO COARSE SAND, TRACE FINE GRAVEL SLIGHT ODOR
35	35	3.2	100.7			35	7	■			AS ABOVE, NO ODOR
40	40	3.8	102.6			40	8	■			AS ABOVE, NO ODOR
	45										BORING TERMINATED AT 41.5 FEET, 0900 HOURS, MARCH 21, 1985

LOG OF BORING

Dames & Moore

BORING 6

1050

NOTE: BORING DRILLED AT 20° ANGLE TO VERTICAL IN N90°W DIRECTION; TOTAL LATERAL OFFSET= 9.9 FEET.

DEPTH		ANALYTICAL DATA				SAMPLE DATA				SOIL TYPE		DESCRIPTION
		LABORATORY		FIELD								
VERTICAL	LINEAR	MOISTURE (% DRY WEIGHT)	DENSITY (lbs/ft^3)			BLOWS PER FOOT	SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE TYPE	USCS	SYMBOLS	
												ASPHALTIC CONCRETE
5	5	7.6	100.0				6	1	■	SM		DARK BROWN SLIGHTLY VERY FINE TO FINE SAND, SLIGHTLY MOIST NO ODOR
										SP		LIGHT BROWN FINE TO MEDIUM SAND, TRACE FINE GRAVEL NO ODOR
10	10	6.8	98.5				11	2	■			
15	15	3.2	114.3				16	3	■	SW		LIGHT BROWN FINE GRAVELLY MEDIUM TO COARSE SAND, GRAVEL TO 2 INCHES NO ODOR
20	20						21	4	■			AS ABOVE, NO ODOR
25	25	3.5	110.0				26	5	■			AS ABOVE, NO ODOR
	30											BORING TERMINATED AT 26.5 FEET, 1237 HOURS, MARCH 21, 1985

LOG OF BORING

Dames & Moore

BORING 7

1050

NOTE: BORING DRILLED AT 20° ANGLE TO VERTICAL IN N90°W DIRECTION; TOTAL LATERAL OFFSET= 13.4 FEET.

DEPTH		ANALYTICAL DATA					SAMPLE DATA					SOIL TYPE		DESCRIPTION
		LABORATORY			FIELD									
VERTICAL	LINEAR	MOISTURE (%DRY WEIGHT)	DENSITY (lbs/ft^3)				BLOWS PER FOOT	SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE TYPE	USCS	SYMBOLS	
											SM/SP		DARK GRAYISH BROWN SLIGHTLY SILTY FINE TO MEDIUM SAND ORANGE (IRON?) STAINING COMMON, ODOR
5	5	31.4	81.1					6	1	■			GRADING COARSER, ODOR
10	10	5.5	101.5					11	2	■			
15	15	4.1	103.4					16	3	■	SW		LIGHT BROWN FINE TO COARSE SAND, TRACE SILT, TRACE FINE GRAVEL TO 1/4 INCH DIAMETER, ODOR
20	20	2.2	102.1					21	4	■			AS ABOVE, ODOR
25	25	2.4	111.4					26	5	■			LIGHT GRAY FINE TO COARSE SAND, TRACE SILT, TRACE GRAVEL SLIGHTLY MOIST, ODOR
30	30	3.2	120.1					31	6	■	SP		LIGHT BROWNISH GRAY SLIGHTLY GRAVELLY MEDIUM TO COARSE SAND, GRAVEL TO 3 INCH DIAMETER, SLIGHT ODOR
35	35	3.6	105.4					36	7	■			LIGHT BROWN FINE TO MEDIUM SAND, TRACE SILT, TRACE GRAVEL TO 1/8 INCH DIAMETER, NO ODOR
40													BORING TERMINATED AT 36.5 FEET, 1510 HOURS, MARCH 21, 1985

LOG OF BORING

Dames & Moore

Attachment to Kennedy/Jenks Engineers
letter report to Pacific Airmotive Corporation
dated 2 Apr. 1985

ATTACHMENT B

KENNEDY/JENKS ENGINEERS LABORATORY SOIL ANALYSIS REPORTS

FOR PHASE II SOIL BORINGS

Attachment to Kennedy/Jenks Engineers'
letter report to Pacific Airmotive Corporation
dated 12 April 1985

TABLE 1

RESULTS OF ORGANIC VAPOR FIELD SURVEY AND LABORATORY ANALYSES
FOR JET FUEL IN SOIL SAMPLES

PACIFIC AIRMOTIVE CORPORATION SITE IN BURBANK, CA
(K/J 4101)

Sample Boring Location[a]	Sample Depth Below Ground Surface[b] (feet)	Soil Sample Organic Headspace Vapor Concentration[c] (ppm)	*Jet Fuel Concentration in Soil[d] (mg/kg)
1	16	410	480
	21	>1000	3600
	26	4	<1
	31	6	<1
	36	0.7	<1
	41	0.3	-
2	6	1.5	-
	11	1.0	<1
	16	1.4	-
	21	1.5	<1
	26	1.6	-
	31	1.7	-
	41	1.8	<1
3	6	1.0	-
	11	1.1	<1
	16	90	59
	21	220	2400
	23.5	200	19
	26	1.2	<1
	31	0.6	<1
	36	1.1	-
4	6	1.1	-
	11	1.1	-
	16	1.1	<1
	21	1.2	<1
	26	1.6	<1
5	5.5	560	2800
	10.5	520	400
	15	200	25
	19.5	1.1	63
	24.5	1.4	<1
	29	1.3	-

Attachment to Kennedy/Jenks Engineers'
letter report to Pacific Airmotive Corporation
dated 12 April 1985

TABLE 1 (CONTINUED)

RESULTS OF ORGANIC VAPOR FIELD SURVEY AND LABORATORY ANALYSES
FOR JET FUEL IN SOIL SAMPLES

PACIFIC AIRMOTIVE CORPORATION SITE IN BURBANK, CA
(K/J 4101)

Sample Boring Location[a]	Sample Depth Below Ground Surface[b] (feet)	Soil Sample Organic Headspace Vapor Concentration[c] (ppm)	Jet Fuel Concentration in Soil[d] (mg/kg)
	34	0.9	-
	38.5	1.1	<1
6	5.5	1.0	<1
	10.5	1.1	<1
	15	1.3	13
	19.5	1.2	<1
	24.5	1.2	10
7	5.5	380	3700
	10.5	400	-
	15	420	480
	19.5	440	610
	24.5	540	1900
	29	2.8	7
	34	2.0	<1
Grab Sample 1	5.5	100	790

a See Figure 1 for sample locations.

b For slant Borings 5, 6, 7 and GS 1, depth was calculated from the boring length and the angle of the slant boring (depth = boring length X sin 70°).

c Soil samples were placed in glass containers and headspace vapors were analyzed with a Foxboro OVA-128. Background vapor concentration varied between 0.3 and 1.8 ppm. Organic vapor concentrations are parts per million (ppm) by volume as methane.

d Analysis by gas chromatography scan using flame ionization detection (GC/FID).

" - " = Not analyzed.

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Attachment to Kennedy/Jenks Engineers'
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dated 12 April 1985

TABLE 2

EPA AMBIENT LEVEL GOALS FOR POTENTIAL CONSTITUENTS OF KEROSENE

Chemical	Estimated Permissible Concentration in Soil Based on Health Effects (mg/kg)
n-dodecane	2200[a]
toluene	1000
ethyl benzene	1200
napthalene	200[a]

a Estimated from chart showing estimated permissible concentration on water based on health effects. Following EPA water to soil conversion formula.

attenuation factor?

Reference: Multimedia Environmental Goals for Environmental Assessment; Volume I (Supplement A) EPA 600/7-80-041 March 1980, Volume III MEG Chart and Background Information Summaries (Categories 1-12) EPA 600/7-79-176a August 1979.

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 3/21/85
Reported 3/26/85

For Attention Address: Kennedy/Jenks Engineers
Noel M. Lerner
657 Howard Street
San Francisco, CA 94105

Lab. No.	851074	851075	851076	851077
Source Pacific Airmotive Corp. Burbank, CA	Boring 1 Depth 16 ft No. 1A	Boring 1 Depth 21 ft No. 2A	Boring 1 Depth 26 ft No. 3A	Boring 1 Depth 31 ft No. 4A
Date Collected	3/19/85	3/19/85	3/19/85	3/19/85
Time Collected	0806	0820	0833	0843
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	480	3600	<1	<1

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Everett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
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Noel M. Lerner
657 Howard Street
San Francisco, CA 94105

Lab. No.	851078	851081	851083	851087
Source Pacific Airmotive Corp. Burbank, CA	Boring 1 Depth 36 ft No. 5A	Boring 2 Depth 11 ft No. 2A	Boring 2 Depth 2 No. 4A	Boring 2 Depth 41 ft No. 8A
Date Collected	3/19/85	3/19/85	3/19/85	3/19/85
Time Collected	0853	1122	1212	1310
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	<1	<1	<1	<1

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Leverett R. Smith

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Soil Analysis Report

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For Kennedy/Jenks Engineers
Attention ~~Noel M. Lerner~~
Address 657 Howard Street
San Francisco, CA 94105

Lab. No.	851089	851090	851092	851093
Source Pacific Airmotive Corp. Burbank, CA	Boring 3 Depth 11 ft No. 2A	Boring 3 Depth 16 ft No. 3A	Boring 3 Depth 23.5 ft No. 5A	Boring 3 Depth 26 ft No. 6A
Date Collected	3/20/85	3/20/85	3/20/85	3/20/85
Time Collected	0745	0755	0813	0824
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	<1	59	19	<1

Comments:
(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Everett R. Smith

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Soil Analysis Report

Kennedy/Jenks Engineers
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(K/J 4101) Page 4 of 8

Lab. No.	851094	851098	851099	851100
Source Pacific Airmotive Corp. Burbank, CA	Boring 3 Depth 31 ft No. 7A	Boring 4 Depth 16 ft No. 3A	Boring 4 Depth 21 ft No. 4A	Boring 4 Depth 26 ft No. 5A
Date Collected	3/20/85	3/20/85	3/20/85	3/20/85
Time Collected	0837	1100	1111	1122
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	<1	<1	<1	<1

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Everett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
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Received 3/22/85
Reported 3/26/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

Lab. No.	851103	851104	851105	851106
Source	Slant Boring 5	Slant Boring 5	Slant Boring 5	Slant Boring 5
Borehole distance:	6 ft	11 ft	16 ft	21 ft
Pacific Airmotive Corp. Burbank, CA	No. 1A	No. 2A	No. 3A	No. 4A
Date Collected	3/20/85	3/20/85	3/20/85	3/20/85
Time Collected	1525	1533	1551	1604
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	2800	400	25	63

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Leverett R. Smith

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Soil Analysis Report

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Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

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For Attention Kennedy/Jenks Engineers
Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101) Page 6 of 8

Lab. No.	851107	851110	851111	851113
Source	Slant Boring 5	Slant Boring 5	Slant Boring 6	Slant Boring 6
Borehole distance:	26 ft	41 ft	6 ft	16 ft
Pacific Airmotive Corp. Burbank, CA	No. 5A	No. 8A	No. 1A	No. 3A
Date Collected	3/21/85	3/21/85	3/21/85	3/21/85
Time Collected	0810	0850	1140	1159
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	<1	<1	<1	13

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Everett R. Smith

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Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
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Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101) Page 7 of 8

Lab. No.		851115	851117	851119	851120
Source		Slant Boring 6	Slant Boring 7	Slant Boring 7	Slant Boring 7
	Borehole distance:	26 ft	6 ft	16 ft	21 ft
Pacific Airmotive Corp. Burbank, CA		No. 5A	No. 1A	No. 3A	No. 4A
Date Collected		3/21/85	3/21/85	3/21/85	3/21/85
Time Collected		1233	1345	1357	1410
Collected by		Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	10	3700	480	610

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Everett R. Smith

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Soil Analysis Report

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Laboratory Division
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Reported 3/26/85

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Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101) Page 8 of 8

Lab. No.	851121	851122	851123	851116
Source	Slant Boring 7	Slant Boring 7	Slant Boring 7	Slant Boring GS-1
Borehole distance:	26 ft	31 ft	36 ft	6 ft
Pacific Airmotive Corp. Burbank, CA	No. 5A	No. 6A	No. 7A	
Date Collected	3/21/85	3/21/85	3/21/85	3/21/85
Time Collected	1425	1435	1445	1105
Collected by	Dames & Moore personnel			

Analysis (1)	Units	Analytical Results			
Jet Fuel	mg/Kg	1900	7	<1	790

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Everett R. Smith

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Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 3/21/85
Reported 3/28/85

For Attention Address: Kennedy/Jenks Engineers
Noel M. Lerner
657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.	851091
Source Pacific Airmotive Corp. Burbank, CA	Boring 3 Depth 21 ft No. 4A
Date Collected	3/20/85
Time Collected	0805
Collected by	Dames & Moore personnel

Analysis (1)	Units	Analytical Results
Jet Fuel	mg/Kg	2400

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW

Manager Everett R. Smith

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Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 3/22/85
Reported 3/28/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.	851112	851114
Source Pacific Airmotive Corp. Burbank, CA	Slant Boring 6 Borehole distance 11 ft No. 2A	Slant Boring 6 Borehole distance 21 ft No. 4A
Date Collected	3/21/85	3/21/85
Time Collected	1148	1220
Collected by	Dames & Moore personnel	

Analysis (1)	Units	Analytical Results	
Jet Fuel	mg/Kg	<1	<1

Comments:
(1) Analysis of extract by gas chromatography, using flame ionization detection. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, JW Manager Leverett R. Smith